HEWLETT®
PACKARD

HP 5000
Cut Sheet
Printers

User Manual
Model D640
(Printer and Accessories)

HP 5000

D640 Cut Sheet Printer

User Manual

(Printer and Accessories)

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Caution and Warnings

A Caution denotes a hazard. It calls attention to a procedure which, if done incorrectly or inattentively, could damage or destroy part or all of the product. Do not proceed beyond a Caution until the indicated conditions are fully understood and met.

A WARNING denotes a hazard. It calls attention to a procedure or practice, which, if not done correctly or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

Manual Conventions

The following conventions are used in this manual:

Note   Notes contain important information set off from the text.

Caution   Caution messages indicate procedures which, if not observed, could result in damage to equipment.

WARNING!   Warning messages call attention to situations that could result in personal injury.

Printer Warning Symbols

In addition, the following Warning symbols appear on the printer:

WARNING!   This symbol indicates high voltage is present. Do not remove or open any panel marked with this symbol.

WARNING HOT!   This symbol indicates high temperatures may be present that could result in burns or other high-temperature hazards.

WARNING! Disconnect the printer from its power source whenever performing any maintenance or installation procedure.

The printer is equipped with safety interlock switches on most of its covers. The switches disable parts of the printer when the covers are opened. These areas present the risk of electric shock, burns, and injury from mechanical hazards.

Any unauthorized removal of safety covers, manipulation of safety switches, and interference with the safety system is strictly prohibited. Such actions can cause personal injury and can damage the system. Also make sure that the operating and maintenance areas are not obstructed in any way.

With any drive mechanism, loosely hanging items of clothing and jewelry, such as ties, belt ends, necklaces, bracelets, and rings, and unprotected hair can cause injury if caught in the mechanism.

Preface

The *User Manual* contains all the information needed to operate the printer.

This information is directed toward printer operators who are familiar with basic printer operations and comfortable with replacing printer consumables such as the toner.

We suggest you take the time to look through and familiarize yourself with the various chapters of the *D640 User Manual*.

Chapter 1, "About Your Printer", provides an overview of the printer's features.

Chapter 2, "Control Panel", is a detailed reference to all of the printer's options.

Chapter 3, "Printer Tasks", explains how to set up printing options.

Chapter 4, "Ordering and Replacing Consumables", guides you through replacing printer consumables, such as toner and developer, and explains how to order more consumables.

Chapter 5, "Maintenance", guides you through cleaning and other maintenance procedures that keep print quality at its best.

Chapter 6, "Advanced Topics", explains additional topics about the printer that may be of interest to you. Topics include how to obtain optimal print quality, manage consumables, adjust paper path alignment, and so on.

Appendix A, "Printer Messages" is a complete list of printer messages, which tell you when to replace consumables or notify you of problems, and provides samples of simulated poor print quality to help you diagnose print quality problems.

Appendix B, "Host Serial and Parallel Interface Configuration" describes the serial and parallel connection options between the printer and its host, and tells you how to configure them.

Appendix C, "Specifications and Regulatory Information", provides specifications for the printer, HCI, and HCO, and all applicable safety and regulatory compliance statements.

Appendix D, "Using Paper", provides information about paper and other media used with the printer.

Appendix E, "Printing Reports", tells you how to print informational reports about printer settings and installed options.

Appendix F, "Warranty and Support", tells you how to obtain assistance in setting up the D640 printer and repairing it.

Please feel free to send us your comments, complaints, or suggestions by filling out the reader response card at the end of this manual.

Other Manuals

The *HP 5000 D640 Installation Manual,* C5620-90015 (English version) guides you through unpacking, setup, testing, and configuration of your printer.

The *HP 5000 D640 Technical Reference Manual, C5620-90000,* is a guide to using fonts and the PCL and PJL emulations on the D640. It also documents additional aspects of printer usage in detail.

The *HP 5000 D640 Service Manual*, C5620-90013, is a comprehensive technical reference to all mechanical and electronic components in the printer. The *Service Manual* helps you perform fault diagnosis and isolation, then guides you through replacement of subassemblies.

The *PCL/PJL Technical Library*, 5021-0330, which contains:

The *PCL Comparison Guide*, 5010-3998

The *PJL Technical Reference Manual*, 5010-3999

The *PCL5 Printer Language Technical Reference Manual*, 5961-0509

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About Your Printer

Figure 1-1   D640 with High Capacity Input and High Capacity Output installed

Standard Features of the D640 Printer

- 600 x 600 dpi resolution
- 40 page per minute printing (simplex)
- Duplex printing from A5 to Ledger size paper, plus custom sizes
- Prints forms, pre-punched, labels, and transparency media
- Standard paper input capacity of 1500 sheets (three paper trays)
- 16 MB of memory, expandable to 64 MB
- Hewlett-Packard LaserJet printer compatibility
- EconoMode for reducing toner expense
- Microfine toner

- Toner recycling
- Virtual Font Cartridges resident on internal hard disk
- Operator-replaceable consumables (toner, developer powder, drum, fuser, and paper pick rollers)
- Bitronics parallel and serial interfaces with automatic switching
- PCL 5e, PJL, and HP-GL/2 language support built in
- IEEE 1284C support for 10 meter parallel cables
- Energy Star compliance

Accessories For the D640 Printer

- High-Capacity Input (HCI) holds 3000 sheets
- High Capacity Output (HCO) holds 2000 sheets
- Custom-size paper trays
- PostScript™ Level 2
- 16 MB memory upgrade

Full 600 x 600 Resolution

The D640 provides full 600 X 600 dpi (dots per inch) laser resolution, and microfine toner, ensures output with a professional and crisp look.

Rugged Construction for Long Life

The HP 5000 D640 is ruggedly constructed for years of printing at the rated monthly duty cycle and for continuous operation without danger of damage to the print engine, a capability especially important for peak printing periods such as month-end processing.

Consumable Replacement and Tracking

D640 toner and developer are easily replenished from bottles, and all consumable printing components (photoconductor drum, fuser, and paper pick roller) are replaceable without tools. To further simplify operation and management, the D640 tracks toner, developer, photoconductor drum, fuser, and paper pick roller usage and displays operator messages advising replacement as needed.

Duplex Printing With No Performance Degradation

The D640 performs duplex printing (letter and A4 paper sizes) at 40 page sides per minute.

Toner Recycling and Economy Mode Printing

The D640 supports both toner recycling and economy printing mode for greater toner yields. Toner recycling can increase toner yield by up to 20%. In economy mode, toner usage is reduced by up to 30% with minimal impact on text print quality.

High Capacity Paper Handling

The D640 features a maximum standard input capacity of 1500 sheets in three 500-sheet paper trays. Maximum standard output capacity is 400 sheets. Addition of the High Capacity Input (HCI) accessory increases the total input capacity to 4500 sheets. The High Capacity Output (HCO) accessory handles up to 2000 sheets and supports output jogging for job separation.

Custom Paper Size Support

The D640 supports non-standard paper sizes with a custom paper tray. Paper sizes as small as 4.75 inches by 7.2 inches (120 mm x 182 mm) or as large as 11.7 inches by 17 inches (297 mm x 431.8 mm) can be accommodated. The custom paper tray can be used as tray1, tray2, or tray3. When using more than one custom paper tray, each tray must contain the same size of paper.

Backlit LCD Display

The D640 features a backlit, menu-oriented, Liquid Crystal Display for ease of configuration and printer management. Five different languages are supported (English, German, French, Spanish, and Italian).

Multiple Interfaces

The D640 features integrated Bitronics (parallel) and serial interfaces and supports automatic switching between these two interfaces. HP JetDirect EX external network interfaces (purchased separately) provide Ethernet/IEEE 802.3 or Token Ring IEEE 802.5 LAN interfaces. The same network management software used with HP LaserJet printers and HP JetDirect cards can be used with the D640 and HP JetDirect EX products, allowing networked HP printers to be administered and managed with a common set of software tools.

PostScript Level 2

PostScript is available for the D640 as an add-on product and includes an additional 16 megabytes of memory. The printer can be configured to automatically switch between PostScript and PCL print jobs.

Compatibility with LaserJet 4Si/5Si Printer

The HP 5000 D640 is compatible with the HP LaserJet 4Si printer driver. However, because the D640 provides more functionality than the HP LaserJet 4Si, not all D640 features can be accessed with the 4Si printer driver. You can use third party products or additional programming to access additional D640 features.

The HP 5000 D640 is also compatible with the HP LaserJet 5Si printer driver. However, there are a few limitations when using the LaserJet 5Si printer driver. Please refer to Chapter 6, "Advanced Topics", for a discussion of LaserJet compatibility.

PCL Level 5e

The D640 printer supports PCL, the print language of HP LaserJet printers and the most widely installed print language in the world. Support for PCL Level 5e provides powerful formatting capabilities and compatibility with a wide range of software solutions.

Integral Hard Disk

The D640 features an internal hard disk drive(850 MB or more) factory preloaded with thousands of fonts and symbol sets. The hard disk can also be used for storing additional fonts, electronic forms as PCL macros, and company logos.

Energy Star Compliance

To help minimize power consumption, the D640 complies with the Energy Star Program of the U.S. Environmental Protection Agency.

Note   If you have not done so, please refer to the Installation Manual and complete the installation procedures. These procedures ensure the safe operation of the printer and the best print quality.

The printer requires regular maintenance, as described later in this manual. Although maintenance takes only a few minutes weekly, it is very important to the quality of the printouts and the life of the printer.

Caution   Hewlett-Packard recommends the use of Hewlett-Packard labelled consumable supplies. Hewlett-Packard is not responsible for any failures or print quality issues arising from the use of other than Hewlett-Packard supplies. Such failures are not covered under warranty or by any Hewlett-Packard service agreement.

Getting to Know the Printer

Orientation

Unless otherwise noted, all instructions in this manual assume you are facing the front of the printer, with the paper trays on the bottom and the paper output on the top.

HCO   D640 Printer   HCI
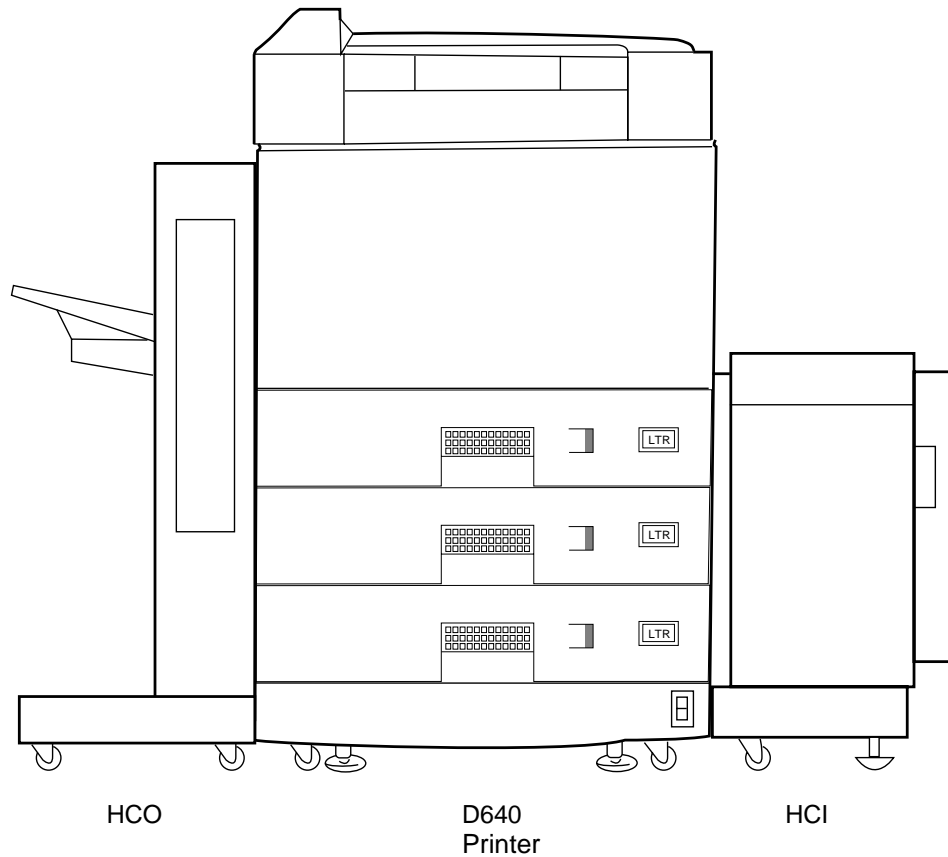
Figure 1-2   D640 with High Capacity Input and High Capacity Output

The D640 Printer

Your printer may or may not be installed with the optional high capacity input (HCI) and high capacity output (HCO) accessories. Figure 1-2 shows the printer, the HCI, and the HCO installed together. If you want to know more about these optional accessories, refer to "High Capacity Input Accessory" on page 1-16 for the HCI, or "High Capacity Output Accessory" on page 1-17 for the HCO.

Figure 1-3 shows the front and right sides of the printer and an overview of the Control Panel.
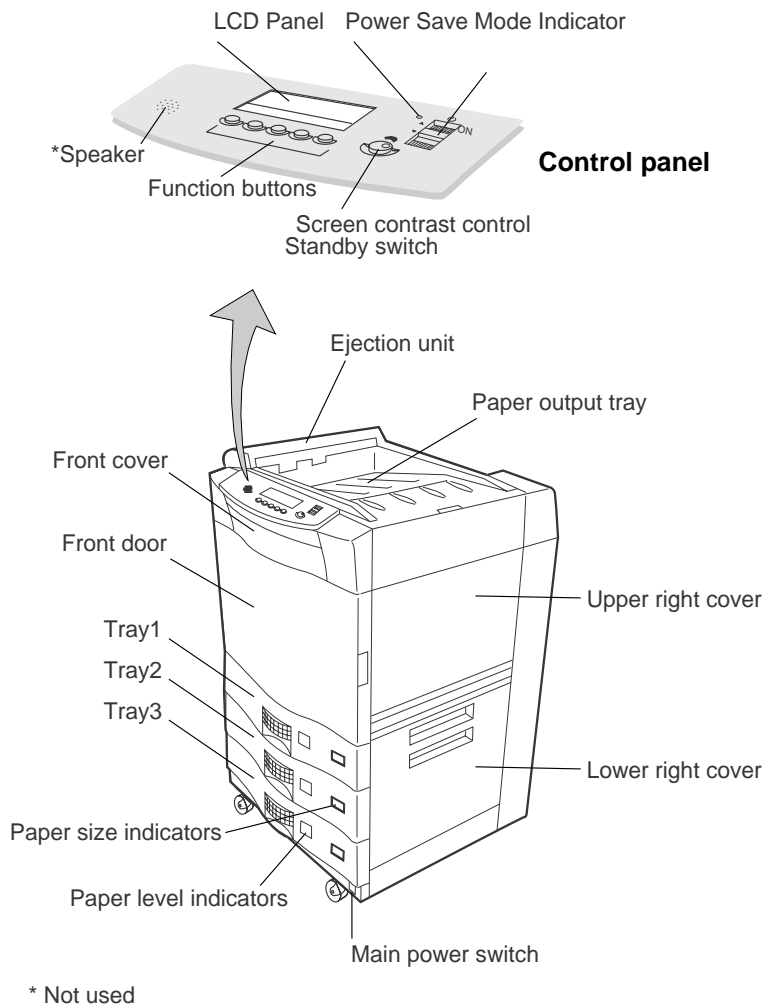
Figure 1-3   Front and right side of the printer

Front and Right Side of the Printer

In Figure 1-3, starting at the Control Panel at the top left and reading clockwise, refer to the following points of interest.

- **Control Panel:** Consists of function buttons and a liquid crystal display (also referred to as the LCD panel) that presents messages about printer activity.
- **Screen contrast control:** Allows you to adjust the contrast of the display.
- **Ejection unit:** Deposits paper to the output tray.
- **Standby switch:** Powers the printer on and off.
- **Output tray:** Holds printed pages.
- **Upper right cover:** Provides access to add toner and developer.
- **Lower right cover:** Provides access to the paper path (for jam clearing) from the paper trays.
- **Paper indicators:** Provide a visual gauge for the size and relative amount of paper in each tray.
- **Main power switch:** Applies line voltage to the printer.
- **Trays 1, 2, and 3:** These are the input paper trays for standard size media. You can also obtain and install optional adjustable custom trays that hold custom (or standard) sizes of paper.
- **Front door:** Provides access to the printer's interior.
- **Front cover:** Provides access to the printer's floppy disk drive for installing PostScript and PCL code updates.

PC card slot *

Serial diagnostic port *

Floppy disk drive

Front cover

* For support use only.
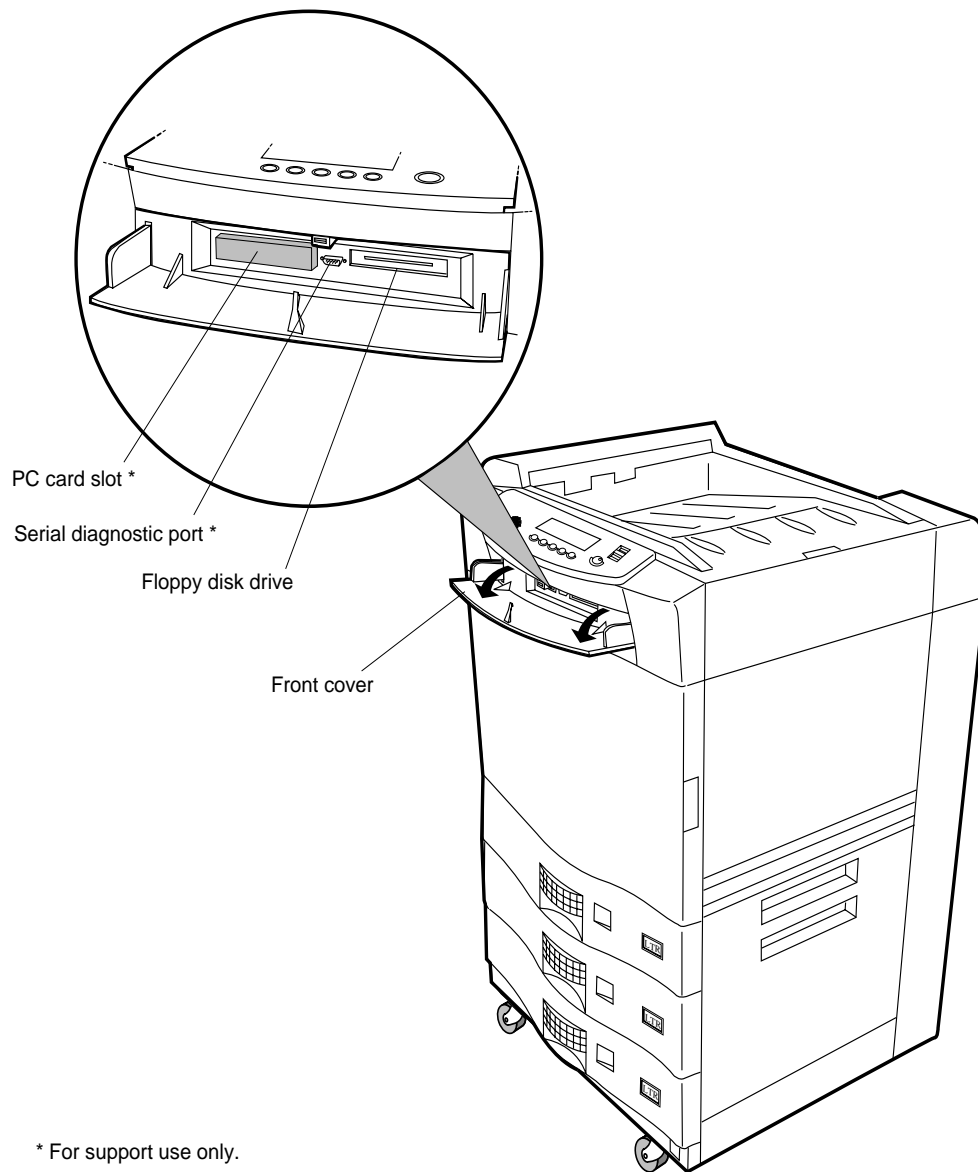
Figure 1-4   Behind the front cover

Behind the Front Cover

The front cover is located below the Control Panel, as shown in Figure 1-4. When you open it, you find the following:

- **PC card slot**: Used only for support testing, and covered with a rubber protective cap.
- **Serial diagnostic port:** Used only for testing.
- **Floppy disk drive:** Used for updating printer functions and installing the PostScript upgrade.

Fuser locking knob
Fuser unit
Drum unit locking knob
Cleaning roller
Lever 5
Decurler roller knob
Decurler lever
Lever 4
Duplex unit
Duplex roller knob
Precharger cleaner
Drum unit
Lever b1
Knob 2
Knob 1
Handle 3
Lever 6
Transfer assembly guide
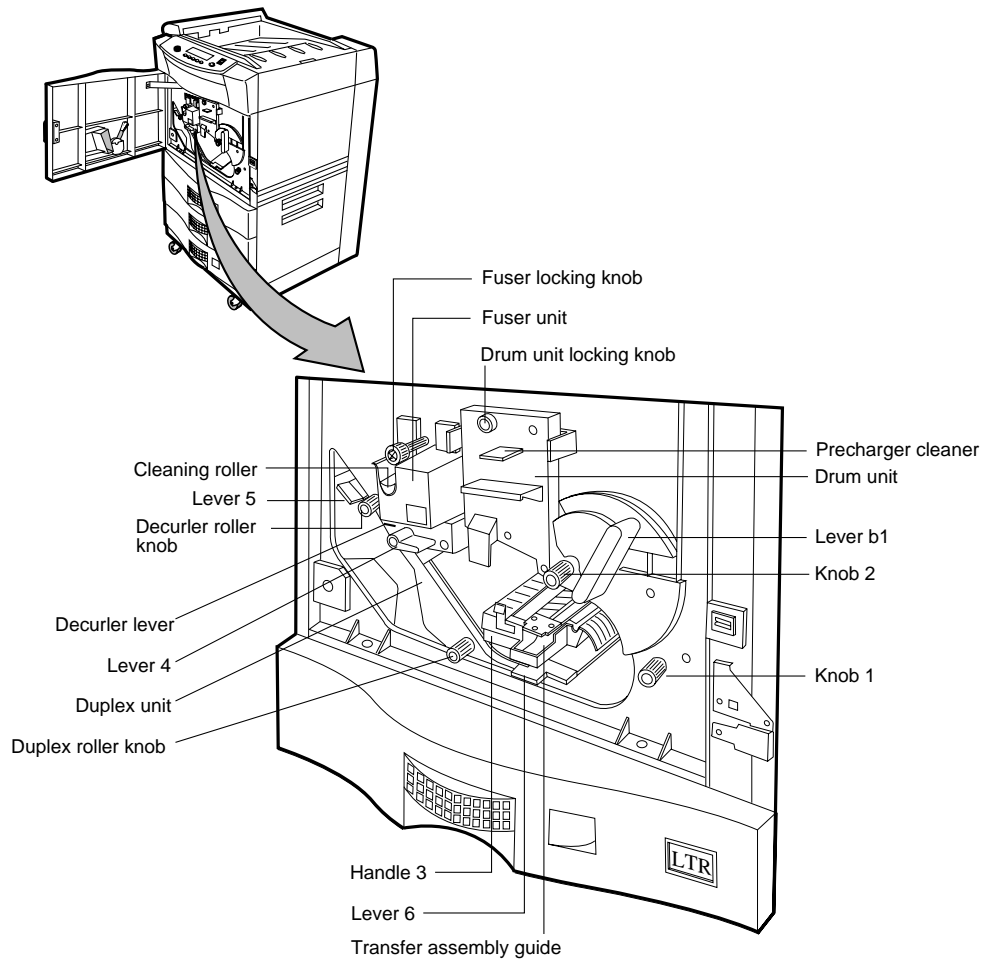
Figure 1-5   Behind the front door

Behind the Front Door

When you open the front door of the printer, you see the printer's internal components, shown in Figure 1-5 and described below.

- **Fuser:** Applies heat and pressure, which melts the toner and adheres it to the paper.
- **Drum unit:** Contains the precharger, photoconductor drum, and cleaner.
- **Transfer guide:** Contains the transfer unit, which moves the print image from the drum to the paper.
- **Fuser Locking knob:** Secures the fuser in the printer chassis.
- **Cleaning roller:** Applies silicone oil and cleans the fuser roller.
- **Drum unit locking knob:** Secures the drum.
- **Precharger Cleaner:** Helps keep the drum surface free of stray toner.
- **Decurler roller knob:** Used to clear paper jams in the immediate area.
- **Duplex roller knob:** Used to clear paper jams in the duplex paper path (during double-sided printing).
- **Knob 1:** Used to clear paper jams as the paper exits the paper trays and enters the drum area.
- **Knob 2:** Used to clear paper jams as the paper exits the paper trays and enters the drum area.
- **Handle 3:** Lowers the transfer guide to clear paper jams in the drum area.
- **Decurler lever:** Provides access to paper in the decurler area to clear paper jams.
- **Lever b1:** Secures the internal printing components in the paper path.
- **Lever 4:** Releases tension on paper in the fuser area to clear paper jams.
- **Lever 5:** Provides access to paper in the reverser area to clear paper jams.
- **Lever 6:** Provides access to paper in the duplexer area to clear paper jams.

Install toner here

Install developer here

Toner collector bottle

Developer collector bottle

Toner hopper

Developer unit
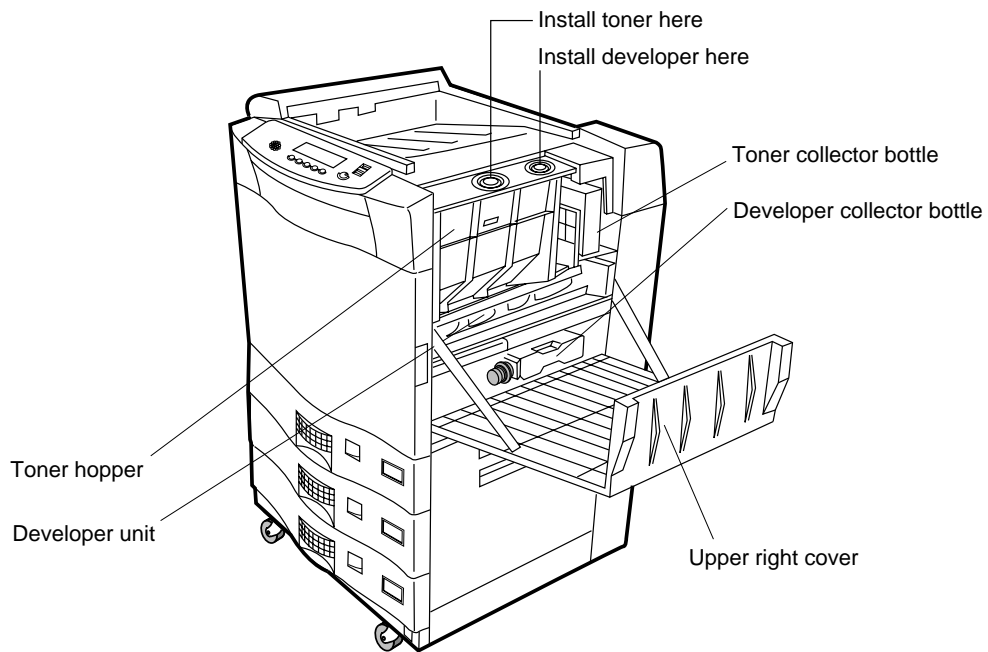
Upper right cover

Figure 1-6   Behind the upper right cover

Behind the Upper Right Cover

By opening the upper right cover, you gain access to the printer's consumables, as shown in Figure 1-6 and described below.

- **Toner hopper:** A reservoir that holds toner. The Control Panel displays messages to indicate toner low and toner empty status. Never add toner before the printer indicates that toner is needed.
- **Developer unit:** holds the developer mixture that prepares toner for transfer to the photoconductor drum.
- **Developer collector bottle:** Collects used developer for disposal.
- **Toner collector bottle:** Collects waste toner for disposal.

Note   Never pour waste toner into the toner hopper. If you do not want to discard waste toner, use the toner recycling feature described in "Toner Recycling Switch" on page 6-8.

Caution   Never re-use developer. Severe print quality problems and physical damage may occur if you do so.

Serial port (RS232/422)

Switches used for support only

Parallel port
(IEEE 1284C)

Ejection unit

Upper left cover

Paper side exit
(under cover)

User documentation
holder

Ozone filter

HCO attachment
points (under covers)

HCI connector

AC input
power connector

HCO connector

Lower connector
not used
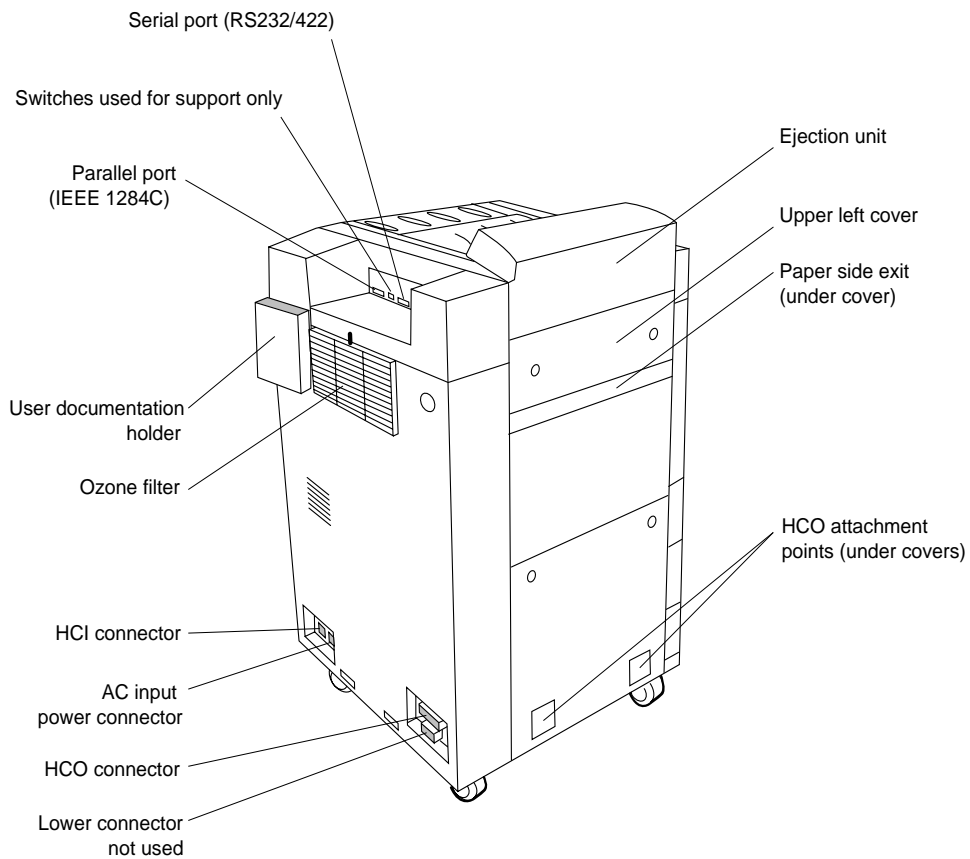
Figure 1-7   Rear and left side of the printer

Rear and Left Side of the Printer

The rear of the printer has the features shown in Figure 1-7 and described below.

- **Ozone filter:** Absorbs and reduces the printer's ozone emissions.
- **Documentation holder:** Provides a convenient location to store the printer manuals.
- **Parallel port:** Supports IEEE 1284C bidirectional host interconnections.
- **Serial port**: Supports RS232/422 host interconnections.
- **Ejection unit:** Provides access to clear paper jams in this area.
- **Paper Side Exit (under cover):** Provides access to the external paper path opening.
- **HCO connector:** Used to control the optional HCO stacker.
- **Lower connector:** Reserved for future accessories.
- **AC input power connector:** Accepts either 120-127 or 200-240 VAC input power (fuser must be matched to the input voltage).
- **HCI connector:** Used to control the optional HCI feeder.

High Capacity Input Accessory

An optional High Capacity Input (HCI) accessory (shown in Figure 1-8) is available to provide an additional input capacity of 3000 sheets. The HCI sits on rails attached to the printer and is electrically connected to the printer by a cable, and obtains its power from the printer. The HCI highlights are:

- **HCI release handle:** When squeezed, detaches the HCI from the printer.
- **Paper table lowering button:** When pressed, lowers the table for paper replenishment. The printer must be powered on with all covers closed, or the table will not lower.
- **HCI door:** Allows visual inspection of the paper supply.
- **Door handle:** Provides easy access to the paper supply.
- **Elevator-type movable table:** Supports the paper supply.
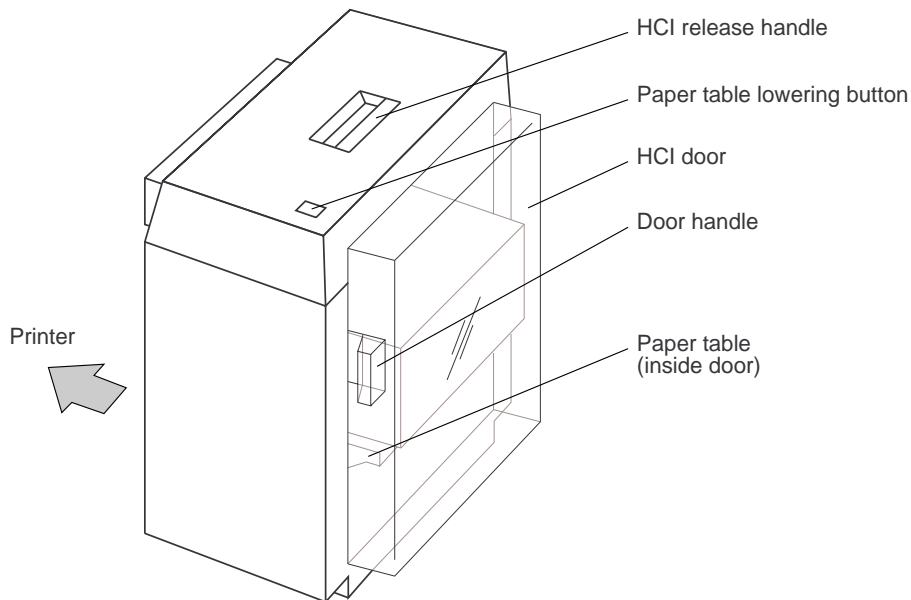
Figure 1-8   High Capacity Input accessory

Note   The HCI is pre-set for either A4 or Letter paper sizes. (Adjusting between the two sizes should be performed only by a trained service technician.)

About Your
Printer

High Capacity Output Accessory

The D640 can stack paper onto the optional High-Capacity Output (HCO) accessory (shown in Figure 1-9), which holds up to 2000 sheets. The HCO uses a standard power cord that may be plugged into any standard 120VAC or 240VAC (depending on the HCO version) wall outlet. The HCO is mechanically and electrically connected to the printer. Power is controlled by the Main Power switch and is normally left in the ON position.

ON

OFF

HCO Interface
control cable

Main Power Switch

Input power cord connector
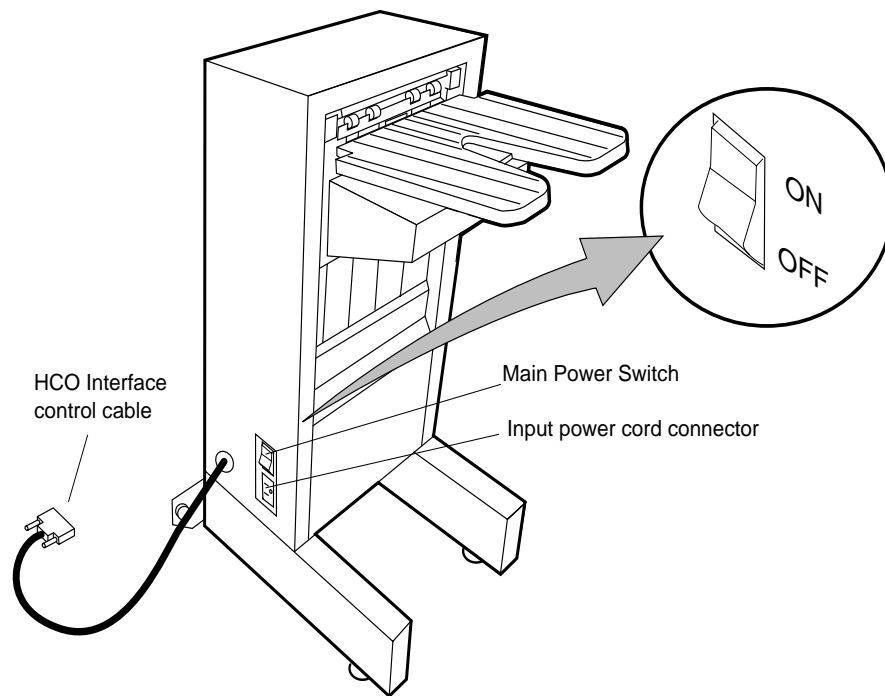
Figure 1-9   High Capacity Output accessory

Powering On the Printer

1. Locate the main power switch and standby switch as shown in Figure 1-10.
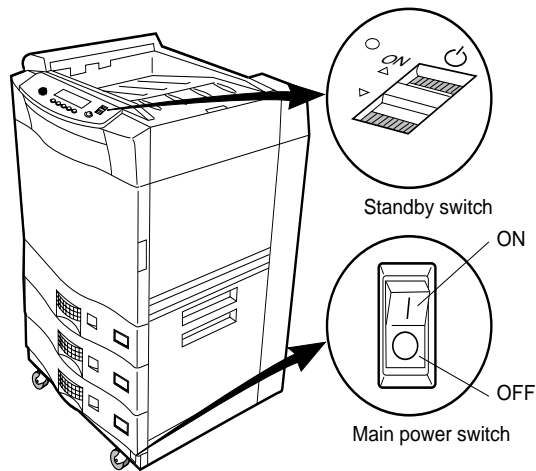
Figure 1-10   Standby switch and Main power switch

2. Turn on the Main power switch by pressing in at the top of the switch.
3. Turn on the Standby switch, as shown in Figure 1-11, by holding the switch in the up position momentarily.
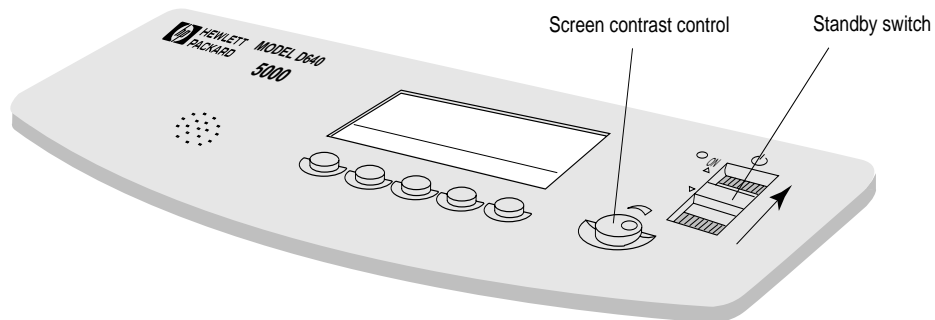
Figure 1-11   Turning on the standby switch

4. If you do not see anything on the display after 5 to 10 seconds, turn the screen contrast control to the 2:00 o'clock (1400) position, as shown in Figure 1-11. You can then adjust the control to an appropriate level.

2

Control Panel

Introduction

The D640 printer performs many kinds of printing tasks. Through the Control Panel menus, you can select options and features.

If your print job contains commands that change the Control Panel settings, the print job commands will be effective for that job only.

This chapter is a detailed reference for all of the D640's menu settings:

Control Panel

Getting to Know the Control Panel
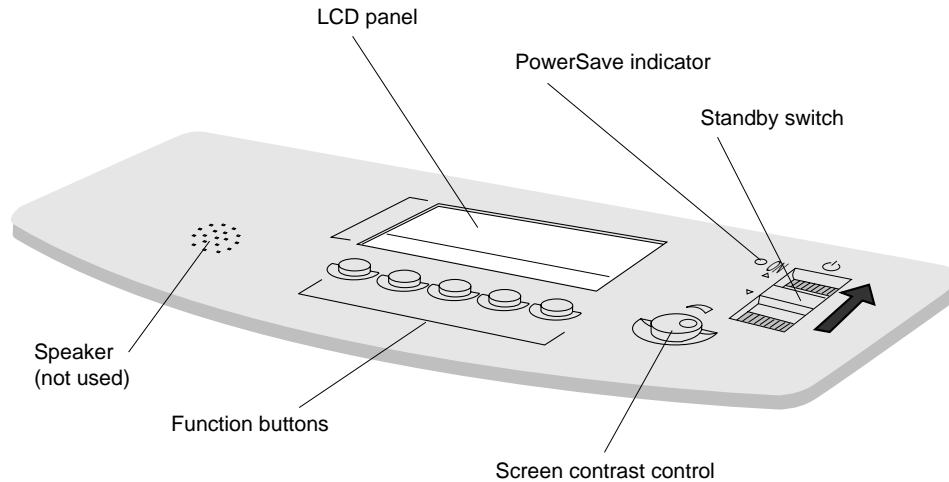
Figure 2-1   Control Panel

Control Panel Features and Functions

The Control Panel is one of the means to control and configure the printer. Through the Control Panel, the printer displays information about aspects of normal operation, paper jams, consumable status, and error conditions. Use the function buttons on the Control Panel to change printer settings.

Control Panel features include:

- The Standby switch turns the printer on and off:
    - When you move the Standby switch momentarily to the ON (or up) position, the printer powers on. There will be up to a 2 minute delay before you can print while the printer performs an initialization sequence and warms the fuser to operating temperature.
    - When you move the Standby switch momentarily to the OFF (or down) position, the printer is powered off and placed in Standby mode. There may be a delay in the printer powering off; any pages currently moving through the paper path are printed before the printer powers off.
- The Screen contrast control adjusts the contrast of the LCD panel.
- The Function buttons are located below the LCD panel. These five buttons perform different functions during printer operations, such as when the printer is printing, or when you are changing settings. Figure 2-6 shows these function buttons.

At any given time, you can only perform the action shown on the Control Panel for a particular button. If a button is undefined, it performs no function.

- The Speaker is not currently activated.
- The Liquid crystal display (LCD) panel displays printer status and operating information. Figure 2-6 shows the basic menu screen, called the Main Screen. Messages on the Main Screen:
  - Show information about printer status, progress of the print job, and the current paper path.
  - Display the paper size configured for each input source.
  - Show any paper jams in the paper path line.
- The PowerSave indicator, when on, indicates that the printer is in PowerSave mode. The backlight of the LCD panel also turns off in PowerSave mode.

Checking Printer Status

You may want to check the D640's status for many reasons:

- To verify that it is ready for printing.
- To verify that it is either Online or Offline.
- To check that the correct date, time, and printing protocol are set.

Normal Printer Status (No Error Condition Displayed)

The message field of the display shown in Figure 2-2 reports the D640's status.
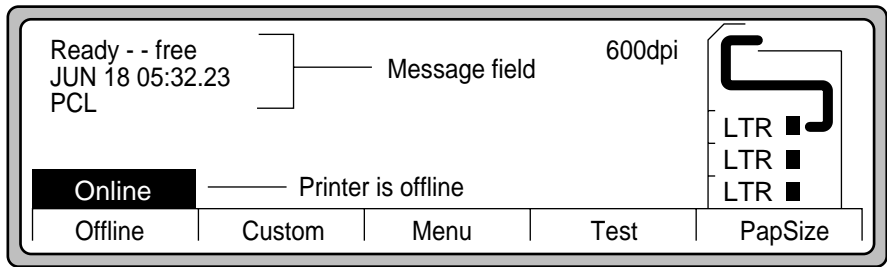
Figure 2-2   Printer status

The message field information indicates:

- Ready -- free

  The printer is ready to print.
- JUN 18 05:32.23

  Displays the current date (JUN 18) and time (05:32.23).

- PCL

  Indicates that the printer is using PCL (Printer Control Language) emulation.
- Online

  The printer is ready to print.

Abnormal Printer Status

The message field (the first and second line) of the Control Panel reports the printer's conditions, such as low toner, paper jam, or door open. In these cases, the Control Panel also describes what action is needed to remedy the situation. Serious conditions may require a service call. Error messages are listed in Appendix A.

The printer constantly monitors the state of consumables such as developer and toner. When a consumable runs low, or has reached its end-of-life, a message notifying you to replace the consumable appears on the Control Panel. An example of such a report is shown in Figure 2-3.
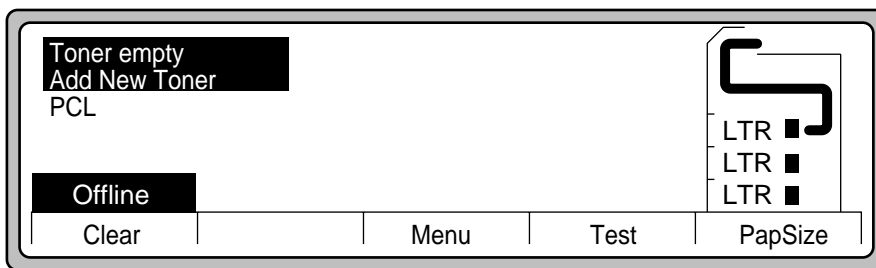
Figure 2-3   Toner empty indication

The printer detects when a cover is open and stops printing to protect you from electrical and mechanical hazards. If a cover is open, the printer reports the condition, like the screen shown in Figure 2-4.

Note   Do not open a cover while the printer is printing; this will cause a paper jam.
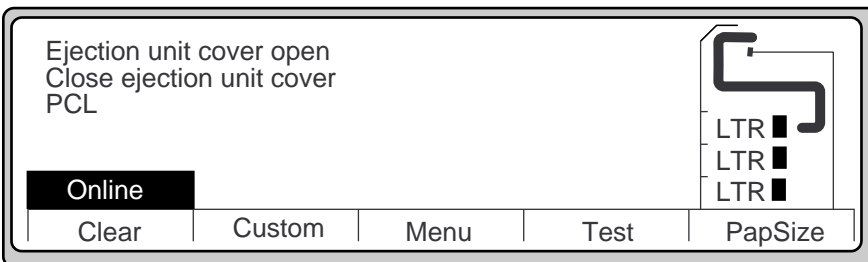
Figure 2-4   Problem status report

Checking Paper

Check the Control Panel to make sure that paper is loaded properly and to observe the progress of printing. You can:

- Verify that the paper trays contain paper.
- Verify that correct paper sizes are in the paper trays.
- Check on paper travel through the paper path when printing.

Figure 2-5 shows the paper supply and path information.
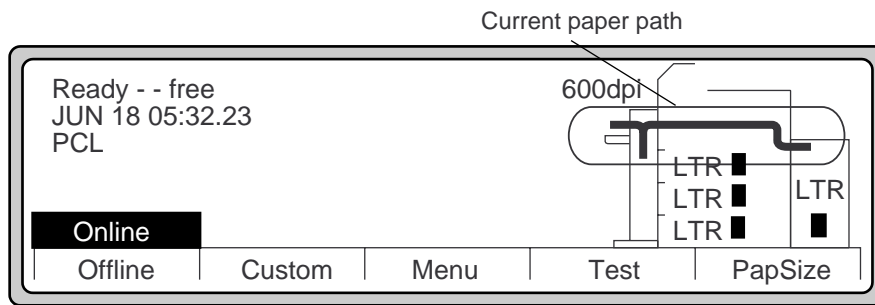
Figure 2-5   Paper supply and path information

The Main Screen display (Figure 2-5) shows the path the paper takes from the selected paper tray to the selected output area. The display also shows the installed paper trays and associated paper sizes, as listed in Table 2-1.

Paper Size	Symbol	Description
Letter (LTR)	▮	LTR indicates that the tray contains letter size paper. The symbol indicates the long edge is leading into the paper path and the filled-in symbol indicates the tray has paper. Note: paper size determines whether the long or short edge leads into the paper path.
A4	▯	A4 indicates that the tray is set to contain A4 size paper. The empty symbol indicates the tray has no paper.
Legal (LGL)	▬	LGL indicates legal size paper installed. The symbol indicates the short edge is leading into the paper path and that the paper tray has paper.
Custom (CUS)	▮	CUS indicates that custom paper is installed in the custom tray. This particular custom tray paper configuration has the long edge leading into the paper path.

HCI	▮	HCI indicates that the HCI is installed and contains paper. Paper size can only be LTR or A4 (depending on the model of the HCI).
A3		A3 indicates that A3 size paper is the specified paper size, but the missing symbol indicates that the tray is open.

Table 2-1 lists all available standard paper categories and their respective sizes.

Table 2-1   Standard paper sizes

Category	Dimensions	Category	Dimensions
Letter	8.5 x 11 in (216 x 279 mm)	A4	8.26 x 11.69 in (210 x 297 mm)
Legal	8.5 x 14 in (216 x 356 mm)	A5	5.84 x 8.26 in (149 x 210 mm)
Ledger	11 x 17 in (280 x 432 mm)	B4 (JIS)	10.11 x 14.32 in (257 x 364 mm)
Executive	7.25 x 10.5 in (184 x 267 mm)	B5 (JIS)	7.16 x 10.11 in (182 x 257 mm)
A3	11.69 x 16.53 in (297 x 420 mm)		

Function Buttons

The following illustration shows the function buttons assigned to the Main Screen. Table 2-2 describes how each function button is used with the Main Screen.
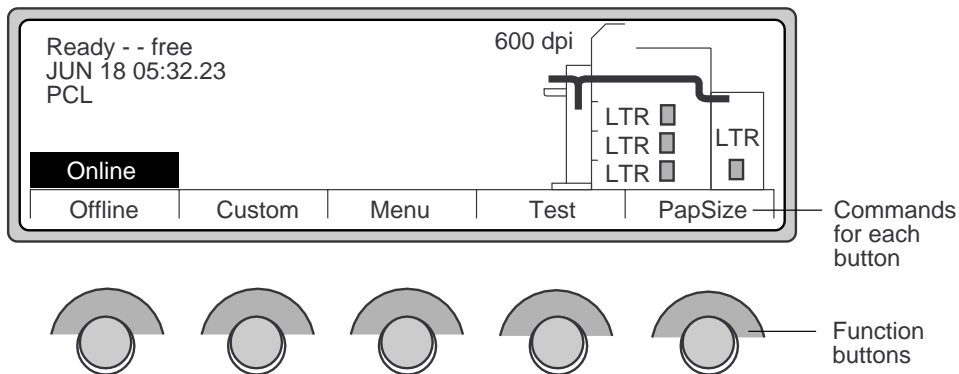
Figure 2-6   Main Screen Function Buttons

Table 2-2   Control Panel Main Screen Function Buttons

Button	Function
Online/ Offline	Online/Offline toggles the printer from Offline to Online.
	Online / Offline — When Online, the printer is ready to print.
	Offline / Online — When Offline, the printer does not accept print requests. The printer goes Offline automatically when a paper jam or other detected problems occur.
Custom	Custom settings store and recall saved configuration settings. You can store up to three different custom configuration settings.
Menu	Menu provides access to five submenus: Printing, Configuration, PCL, Comms, and Maintenance.
Test	Test prints various maintenance and user reports. Test also provides access to files stored on a floppy diskette or on the internal hard disk.
PapSize	PapSize (paper size) provides a configuration menu for setting the paper size for each paper source.

Navigating Through the Control Panel

Submenu Arrow Buttons

Figure 2-7 shows the appearance of the Control Panel when you are ready to make selections from the Control Panel menus. When you want to expand the menu selections (that is, examine and select settings from submenus providing more options), use the arrow buttons (▲, ▼, ▶, and ◀) and the Select button. Table 2-3 describes how to use each arrow button.
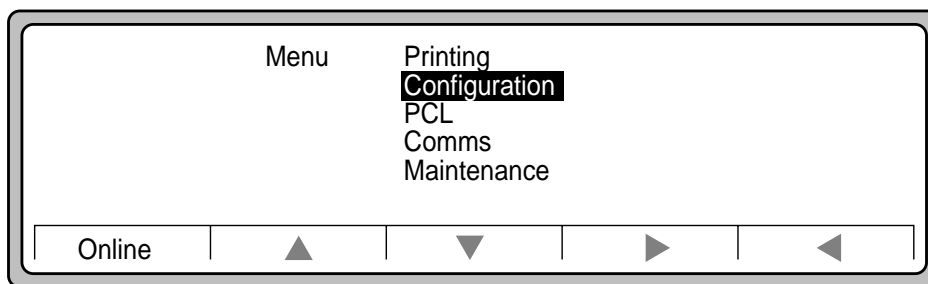
Figure 2-7   Arrow Buttons

Table 2-3   Control Panel Submenu Function Buttons

▲	Press to scroll up the list of items on the submenu.
▼	Press to scroll down the list of items on the submenu.
►	If an additional submenu is available, press this arrow to open the submenu.
◄	Press to close a submenu and return to the previous menu level.
Select	Press to select the setting highlighted on the submenu.

Figure 2-8 shows continuation arrows to indicate there are additional items on a submenu. Press ▼ display the additional items. Figure 2-9 shows the menu choices after you press ▼.
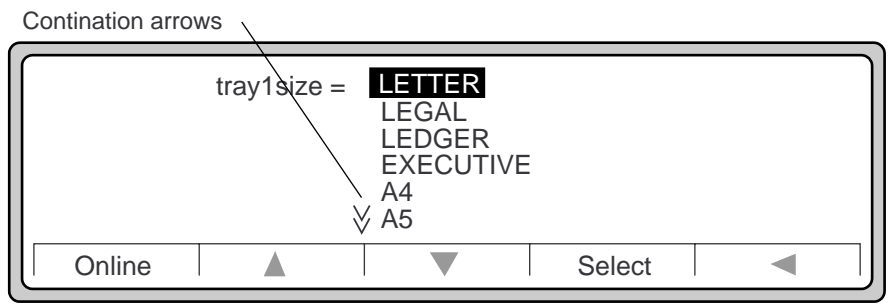
Figure 2-8   Continuation arrows
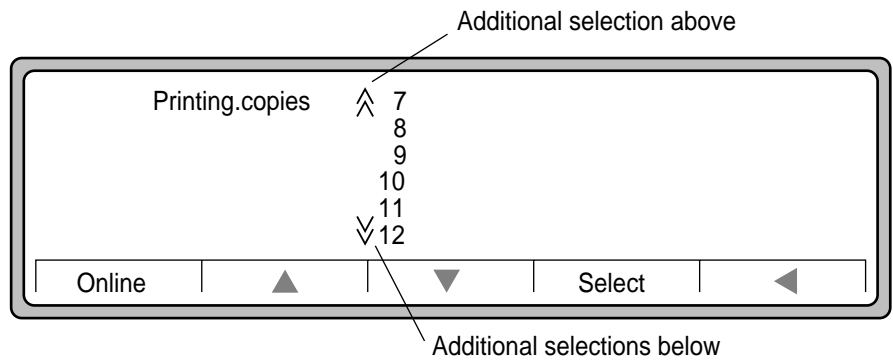
Figure 2-9   Up and down continuation arrows

Once you have highlighted the submenu selection (Figure 2-8), press the Select function button to activate your selection and return to the previous level. The Online function button will change to Save. You can make further changes to the settings, or press Save to store your new settings and return the printer to a Ready -- free state.

Note Changes to menu settings can only be made in the Ready -- free state. If you try to make a change and see the message "menus locked", it means that the printer is processing a print job and changes cannot be made

Changes to settings are not permanently saved unless you press the Save button after making all configuration changes. When you press Save, your new settings are stored in the power-on configuration. If you do not Save, the new settings are only active until you change them again, cycle power, or print a job that contains a reset command.

Custom Menu Settings

The printer provides a means to maintain three different Control Panel custom configurations. This allows you to pre-program configurations for later use. Configuration items available under the Printing, Configuration, PCL, Comms, and some of the Maintenance submenus are saved as part of the custom settings.

1. On the Main Screen, press Custom to display Figure 2-10:

Custom	Restore
	Save

| Online | ▲ | ▼ | ▶ | ◀ |
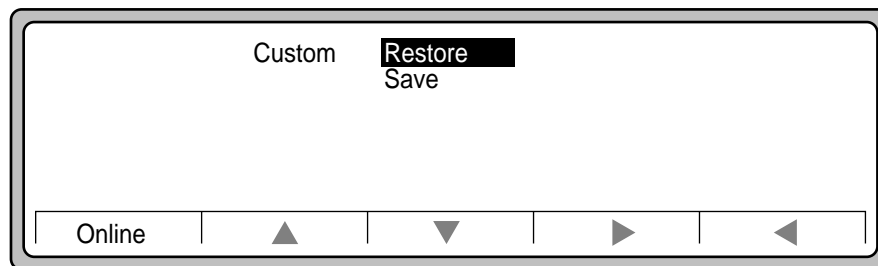
Figure 2-10   Custom Menu

2. Use ▲ or ▼ to highlight your selection:

Restore	Restore is used to recall the printer's power-on configuration, factory default configuration, or one of the three custom configurations.
Save	Save is used to store a new configuration as the power-on configuration or one of the three custom settings. All configurations are stored in the printer.

3. Use ▲ or ▼ to highlight the Save or Restore (Figure 2-10).
4. Use ► to obtain more settings options (Figure 2-11).
5. Use ▲ or ▼ to highlight the option you want.
6. Press Select.

```
┌─────────────────────────────────────────────────────────────┐
│  ┌────────────────────────────────────────────────────────┐  │
│  │            Restore    ▐PwrOnConfig▌                     │  │
│  │                        CUSTOM2                          │  │
│  │                        CUSTOM3                          │  │
│  │                        CUSTOM4                          │  │
│  │                        FACTORY                          │  │
│  ├────────┬─────────┬─────────┬──────────┬─────────────────┤  │
│  │ Online │    ▲    │    ▼    │  Select  │       ◄         │  │
│  └────────┴─────────┴─────────┴──────────┴─────────────────┘  │
└─────────────────────────────────────────────────────────────┘
```
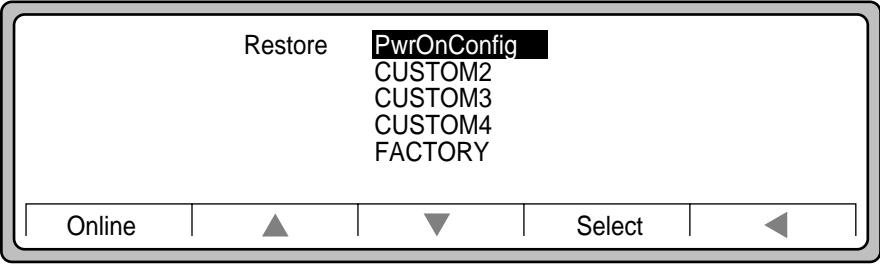
Figure 2-11   Custom restore and save menu settings

PwrOnConfig	This location stores settings used at power-on or from a job reset. **Note:** Whenever you change a configuration value, the Online button changes to Save. If you press Save, the values are changed in the PwrOnConfig location.
CUSTOM2	This location stores one of three custom configurations.
CUSTOM3	This location stores one of three custom configurations.
CUSTOM4	This location stores one of three custom configurations.
FACTORY	This location holds the factory default configuration. Highlight FACTORY and press Select to restore the printer configuration to the factory default.

Printing Menu Settings

The Printing menu provides access to configuration choices that directly affect how your documents are printed. Figure 2-12 shows some of these.

If your software specifies different values than those programmed in the Control Panel, the printer uses the values supplied with the printing job.
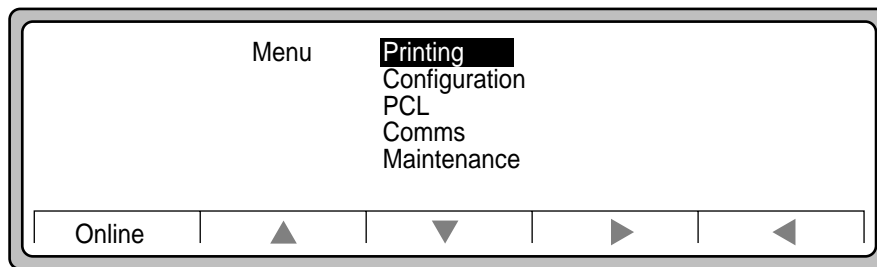
Figure 2-12   Printing Menu

When you see pointers on the screen pointing up or down, that indicates there are additional selections available by using ▲ or ▼ to access them.

In the table below, * indicates that a setting is present only if required option is installed (HCI, HCO, PostScript). The equals sign (=) indicates the factory default value.

Copies	=1 (minimum) 32767 (maximum)	Sets the number of copies to be printed for each page.
Intray	=TRAY1 TRAY2 TRAY3 =HCI* (Default if HCI is present	Sets the default media input source.
Paper	=auto LETTER LEGAL LEDGER EXECUTIVE A4 A5 A3 JISB4 JISB5 CUSTOM	Sets the default image the page will be formatted for. Auto uses the page size of the selected intray.
*Outbin	=UPPER HCO-FACEDOWN HCO-FACEUP	Sets the media output destination.

Duplex	=OFF ON	Turns double-sided printing on or off.
Binding	=LONGEDGE SHORTEDGE	Sets the duplex binding options. LONGEDGE (book) binding is the conventional side-to-side binding used in books. SHORTEDGE (tablet) binding is the traditional top to bottom layout used with calendars.

Jobseparate	=none
	  TRAY1
	  TRAY2
	  TRAY3
		Lets you dedicate an input tray to be used for job separation sheets. "none" indicates that the job separation feature is not enabled. Job separation sheets are usually colored paper. When your print job contains a job separation command, the printer will pick a sheet of paper from the designated tray and insert it into the print job. No text is printed on the job separation page. This feature can be used with the joboffset feature if an HCO is connected.

*Joboffset	=OFF ON	Enables the HCO offset (jogging) feature, which staggers finished jobs for easy separation.

*HCI-Alias	TRAY1
	  TRAY2
	  TRAY3
	  =HCI
		This setting redirects the HCI to act like tray1, tray2, tray3, or like itself. It is provided primarily to make the D640 HCI act just like an HP LaserJet IIIsi or 4si with an HCI, so jobs configured for a LaserJet print correctly on the D640 without modification.
		To match a IIIsi or a 4si, change HCI-Alias to tray2. This will cause all print job commands for tray2 (or lower tray) to pick paper from the D640 HCI.
		For more information, see "Configuring for LaserJet IIIsi and 4si Compatibility" on page 6-24.

Emulation		Allows you to select the printer emulation protocol. The selections are:
		Auto - automatically selects PCL or PostScript* based on the print job data.
		HEX - prints a "hexadecimal dump" of the print (used for troubleshooting).
		PCL - is the standard PCL5e (4si) emulation protocol.
		PS - is the optional PostScript* Level 2 emulation protocol.

Orientation	=PORTRAIT
	  LANDSCAPE
	  REVPORTRAIT
	  REVLANDSCAPE
		Selects the print orientation. The figure below shows print orientation.
		
		Portrait Landscape Reverse Portrait Reverse Landscape

Lpi	0.01 (minimum) = 6.00 100.00 (maximum)	Sets the number of lines per inch to print.
Error-Report	=none ERRORS WARNINGS	The printer is capable of printing errors found while processing a job. This works for PCL or PS jobs and is typically used to help troubleshoot a file which does not print correctly. The options are: none - turns error reporting off. ERRORS - prints all fatal errors that prevent the job from printing correctly. WARNINGS - prints all fatal and nonfatal errors. Non-fatal errors indicate minor processing problems. For example, when the printer can't process a command because of bad syntax.

Control Panel

Configuration Menu Settings

The Configuration menu (Figure 2-13) provides access to choices that affect general printer operation. Figure 2-14 shows an example of Configuration menu selections.
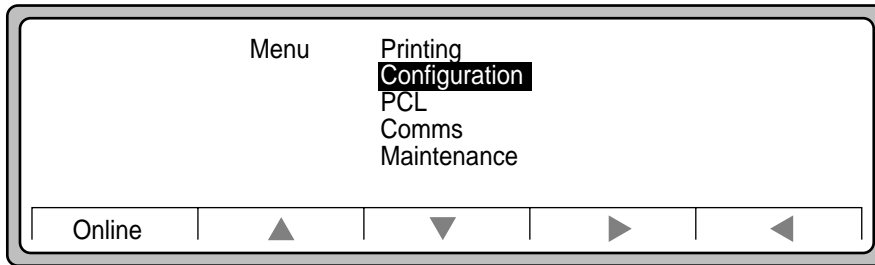
Figure 2-13 Configuration Menu
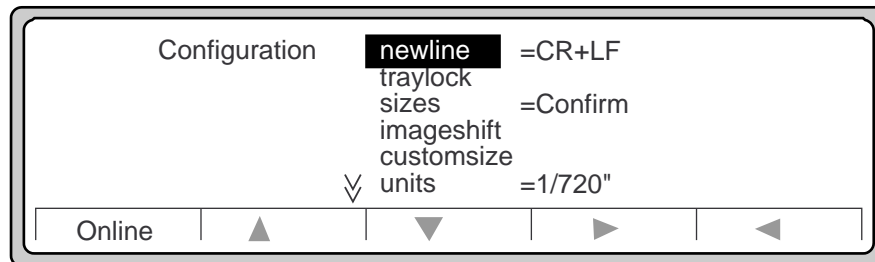
Figure 2-14 Configuration Menu selections

When you see pointers on the screen pointing up or down, that indicates there are additional selections available by using ▲ or ▼ to access them.

In the table below, * indicates that a setting is present only if required option is installed (HCI, HCO, PostScript). The equals sign (=) indicates the factory default value.
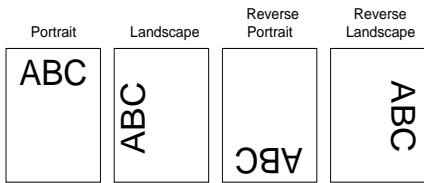

Newline	= CR + LF
	  CR
	  LF
	  CR or LF
		Sets the method of newline interpretation. Some files may contain carriage returns without line feeds, or line feeds without carriage returns. Use this setting to print such files properly.

Traylock.tray 1, 2, 3, and HCI	tray1
	= UNLOCKED
	  LOCKED
	tray2
	= UNLOCKED
	  LOCKED
	tray3
	= UNLOCKED
	  LOCKED
	*hci
	= UNLOCKED
	  LOCKED
		Trays can be locked out of the automatic paper selection process. Lock out paper trays if you don't want the tray to be available unless a job delivers a direct command to pick from that tray. As an example, if you have a tray with letterhead in it, you may want to lock out this tray so that if the other two trays ran out of paper, the letterhead would not automatically be used. Locked trays are only selected if the print job contains the command to select the locked tray.

Sizes	= CONFIRM
	  CONTINUE
	  US
	  ISO
		This setting specifies how the printer behaves when it receives a request for a size of media not currently configured in the printer.
		
		CONFIRM - the printer stops and waits for the operator to intervene. In this case, the following message appears on the Control Panel.
		
		    PAPER-SIZE MISMATCH
		
		    LOAD XX PAPER
		
		CONTINUE - the printer uses the next larger size of paper and prints without any message.
		
		US - the printer uses Letter paper in place of A4 paper, Ledger paper in place of A3 paper, and Executive paper in place of A5 paper.
		
		ISO - the printer uses A4 paper in place of Letter paper, A3 paper in place of Ledger paper, and A5 paper in place of Executive paper.
		
		Note The printer does not automatically resize the print image for the new paper size. As a result, some print data may not appear on the printed page.

Control Panel

			Unit Size Setting Range					
Imageshift.top	$=$ -720(min) 0 720(max)		This setting allows you to incrementally adjust the top position of the image on paper in units, an incremental adjustment. The factory default unit scale is 1/720", but you can reset the unit size with the unit setting (see "Unit" on page 2-17). A typical situation is alignment of text to a pre-printed form. You can adjust within a range of 1 inch positive and 1 inch negative, in 1/720" increments, as listed below.					
Imageshift.left	$=$ -720(min) 0 720(max)		This setting allows you to incrementally adjust the left position of the image on paper in units, an incremental adjustment. The factory default unit scale is 1/720", but you can reset the unit size with the unit setting (see "Unit" on page 2-17). A typical situation is alignment of text to a pre-printed form. You can adjust within a range of 1 inch positive and 1 inch negative, in 1/720" increments, as listed below.					

	inch	milli meter	Unit Size Setting Range					
			1/100"	1/200"	1/300"	1/600"	1/720"	mm
Minimum	-1	-25.4	-100	-200	-300	-600	-720	-25
Maximum	+1	+25.4	+100	+200	+300	+600	+720	+25

Customsize.width	$=$ 2837(min) 8417 8417(max)	This setting configures the media size of nonstandard media. It is only used when you have a custom paper tray and one of the PapSize values is set to Cus(custom). The table below lists the minimum and maximum custom paper widths in units, an incremental adjustment. The factory default unit scale is 1/720", but you can reset the unit size with the unit setting (see "Unit" on page 2-17).

customsize.width	inch	milli meter	Unit Size Setting Range					
			1/100"	1/200"	1/300"	1/600"	1/720"	mm
Minimum	4.72	120	394	788	1182	2364	2837	120
Maximum	11.69	297	1169	2338	3507	7014	8417	297

Customsize.height	=	5155 (min) 12240 12240(max)	This setting specifies the width dimensions of custom paper. The table below lists the minimum and maximum custom paper height in units, an incremental adjustment. The factory default unit scale is 1/720", but you can reset the unit size with the unit setting (see "Unit" on page 2-17).

customsize.height	inch	milli meter	Unit Size Setting					
			1/100"	1/200"	1/300"	1/600"	1/720"	MM
Minimum	7.17	182	716	1432	2148	4296	5155	182
Maximum	17.0	431.8	1700	3400	5100	10,200	12,240	432

Control Panel

Unit	1/100" 1/200" 1/300" 1/600" 1/720" MM	Sets the unit values used in customsize and imageshift.
Dpi	200 dpi 300 dpi =600 dpi	Sets the print resolution for graphic images in dots per inch (dpi).
Clip	OFF =ON	The D640 is able to print an image across the entire surface of the physical paper. The image is clipped to prevent an image from printing within 1/6th inch of any paper edge. This ensures optimum print quality for the printed image. If you don't want this automatic clipping, you can set the printer to Clip = OFF. Even with Clip = OFF, the image will only print to the edge of the paper if your print job contains the appropriate commands. See "Setting Up Edge-to-Edge Printing" on page 6-23 for more information.
Jamrecovery	=ON OFF	When a paper jam occurs, the printer reprints all pages that did not completely exit the printer's paper path. If you do not want pages to automatically reprint after a paper jam is cleared, set Jamrecovery = OFF.
Economode	=OFF ON	This setting specifies economy mode. When it is used for printing drafts, you can save up to 30 percent of your toner consumption. In economy mode solid black areas are filled in with a hatched pattern. When economode is ON, the economode mark (e) appears in the Control Panel, as shown in Figure 2-15.

Tip   To make configuring the Imageshift and Customsize settings easier, set the units to "MM" and make a coarse setting. Then, use a finer unit setting to fine tune the adjustment.

Economode

Ready - - free   600dpi
JUN 18 05:32.23
PCL

LTR ■
LTR ■
LTR ■

Online

| Offline | Custom | Menu | Test | PapSize |

Figure 2-15   Economode

Powersave	off 15 MIN 30 MIN =1 HR 2 HRS 3 HRS	This setting specifies the amount of time after the last print job before the printer enters PowerSave. When the printer enters PowerSave, it switches off the Control Panel backlight and lights the green PowerSave indicator. Any activity on the printer serial or parallel interface or Control Panel buttons restores full power.
Language	=ENGLISH FRANCAIS DEUTSCH ESPANOL ITALIANO	This setting specifies the language of text displayed on the Control Panel and in reports under the test menu.

PCL Menu Settings

The PCL menu (Figure 2-16) lets you set the printer's default font and symbol set. You can also use the PCL menu to configure up to two active font cartridges. The selections are shown in Figure 2-17.

When you see pointers on the screen pointing up or down, that indicates there are additional selections available by using ▲ or ▼ to access them.

Menu	Printing
	Configuration
	PCL
	Comms
	Maintenance

| Online | ▲ | ▼ | ► | ◄ |

Figure 2-16   PCL Menu

PCL	font	=Courier
	symbolset	=ROMAN8 8U
	pitch	=10.00
	pointsize	=12.00
	vcartridge1	=none
	vcartridge2	=none

| Online | ▲ | ▼ | ► | ◄ |

Figure 2-17   PCL Menu selections

Font	Sets the default character font.	
Symbolset	Sets the default symbol set (character set) of the font specified in the font setting. A symbol set is a collection of letters, numbers, and symbols designed for specific applications such as scientific equations and international language.	
Pitch	Sets the default pitch size for the fixed-pitched font. Pitch is the number of characters that can be printed in one horizontal inch. For example, a font with a pitch of 10 will print 10 characters for every horizontal inch of text. If a proportionally-spaced font is selected in the font menu, pitch will not appear on the PCL menu.	
Pointsize	This setting specifies the point size for the scalable font. Pointsize is the height of the font measured in point (1/72 of an inch).	
Virtual Font Cartridges	The D640 printer is designed to be compatible with the HP LaserJet 4si. The 4si has two slots available for font cartridges. HP sells over 50 different font cartridges for 4si and compatible printers. The D640 has no slots to hold these cartridges. Instead, we provide the same functionality with virtual font cartridges. All of the font sets from all of the LaserJet 4si font cartridges sold by Hewlett-Packard are stored on the D640's internal hard disk drive. You select the virtual font cartridge by vcartridge1 and vcartridge2. The font names are comparable to the actual physical cartridge. For a complete list of the fonts available, refer to "Using Virtual Font Cartridges" on page 6-26. **Note:** Fonts located inside a font cartridge cannot be the printer default font.	
Vcartridge1	= None . . . Printer16	Sets the font cartridge used in virtual font cartridge 1. A cartridge is a set of fonts. Specified fonts appear at the bottom of the items in the Font menu. Using vcartridge1 and vcartridge2 together, you can choose two font sets.
Vcartridge2	= None . . . Printer16	Sets the font cartridge used in virtual font cartridge 2.

Comms Menu Settings

The Comms menu (Figure 2-18) contains options for configuring the printer's parallel and serial interface ports. The selections are shown in Figure 2-19.

When you see pointers on the screen pointing up or down, that indicates there are additional selections available by using ▲ or ▼ to access them.
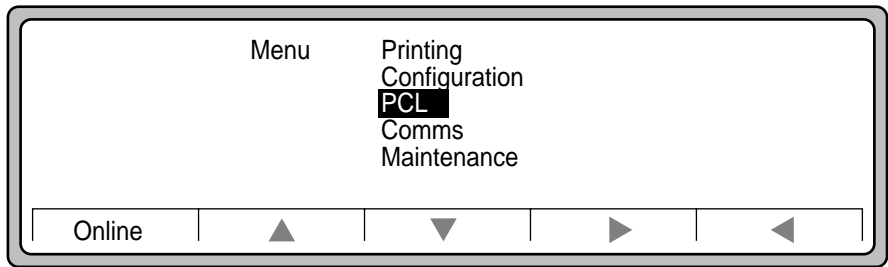
Control Panel

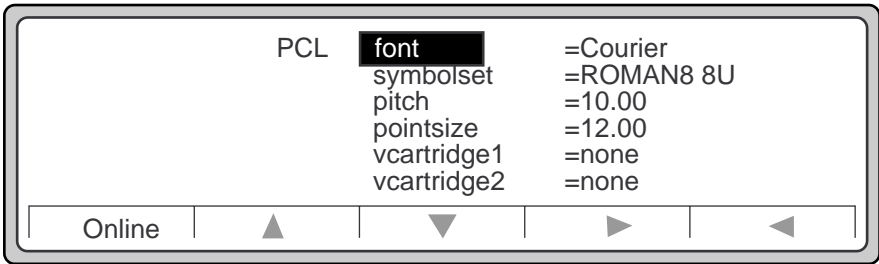*Figure 2-18   Comms Menu*

Figure 2-19   Comms Menu selections

Timeout	none =15 300 (max)	Sets the time limit (in seconds) that the printer waits before ending an incomplete job or switching data ports (serial or parallel). When set to none, the printer waits for you to manually intervene.
Databuffer	1 (min) =32 1000(max) (in Kb)	Sets the size of printer memory allocated for incoming data. Increasing the data buffer size helps the host transfer data more quickly, but the printer has less memory to store pages for printing. Decreasing the data buffer size limits how quickly the host transfers data, but the printer has more memory for processing and storing pages.The amount of data in the buffer, relative to its overall size, is displayed as an expanding and contracting horizontal bar (Figure 2-20) during the processing cycle.
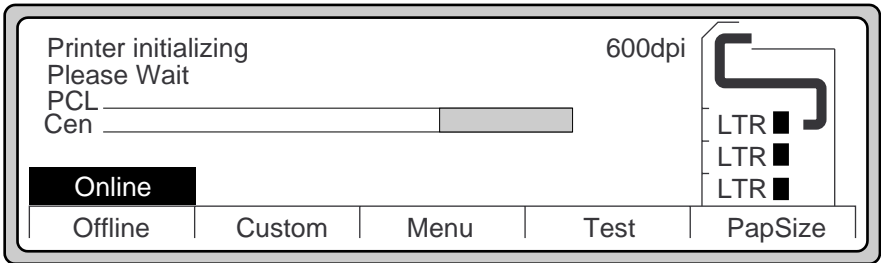
Figure 2-20   Incoming data processing bar

Parallel	This setting specifies Busy signal timing for the Centronics parallel interface.	
	speed = SLOW	Slow setting provides compatibility with older parallel interfaces on personal computers and should only be selected if you see characters missing in your printout.
	speed = FAST	Fast setting provides optimal performance and is the preferred setting.
	mode = COMPATIBLE	This setting operates only in uni-directional mode for downwards compatibility.
	mode = ADVANCED	This setting enables the use of IEEE-1284 bi-directional communication (nibble-mode).

Serial	=baud stopbits parity flow dtr levels	This setting specifies the serial interface communication options. See below for an example of how these options are used together.

Serial Interface Configuration Example

The following is an example of how to configure the serial interface.

1. On Comms menu, use ▼ to highlight Serial. At Serial, use ► to display selections.
2. Use ► to display baud rates.
3. Use ▼ to scroll to display selections (19200 selected).
4. Continue selecting the following parameters:
   - Select stopbits and set the number of stopbits.
   - Select parity and set the parity check condition.
   - Select flow and set the flow control type of the serial interface:

NOFLOW	Disable flow control.
XON/XOFF	Enable XON/XOFF flow control.
ROBUST	Enable ROBUST flow control (a combination of software and hardware flow control).

   - Select dtr and set the method of handling the serial interface Data Terminal Ready (DTR) signal.

HI/LO	DTR polarity high for ready and low for not ready
LO/HI	DTR polarity low for ready and high for not ready
HI/HI	DTR polarity permanently high
LO/LO	DTR polarity permanently low

   - Select levels and set the type of serial interface.

Control Panel

Maintenance Menu Settings

The Maintenance Menu (Figure 2-21) contains options that help you maintain the D640 for optimum print quality. The selections are shown in Figure 2-22.

When you see pointers on the screen pointing up or down, that indicates there are additional selections available by using ▲ or ▼ to access them.
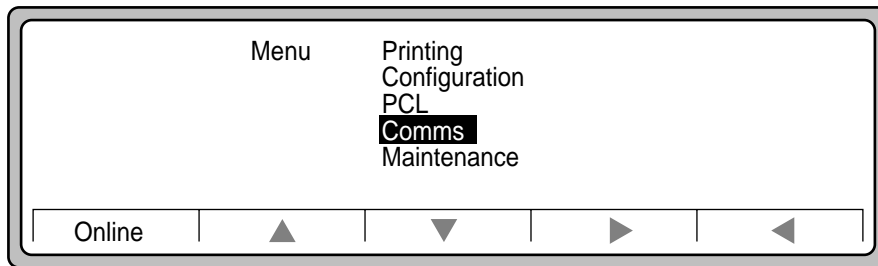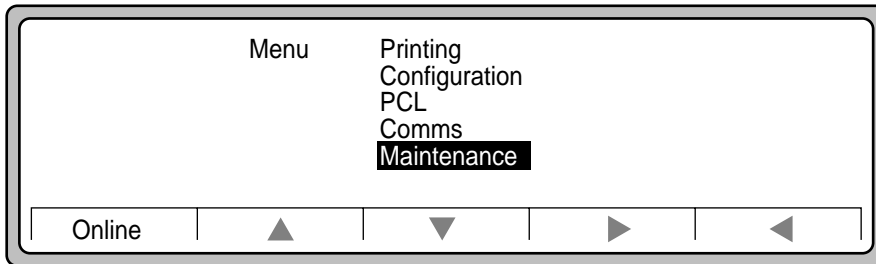

Figure 2-21 Maintenance Menu
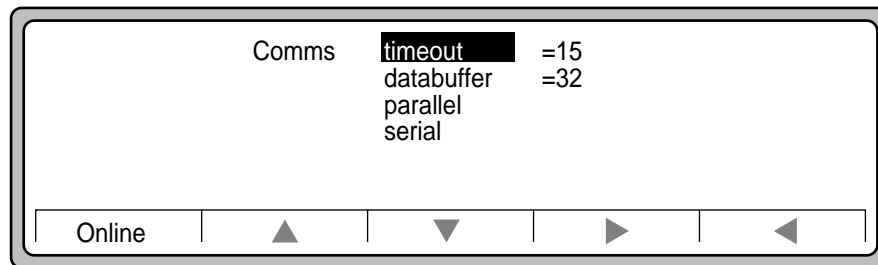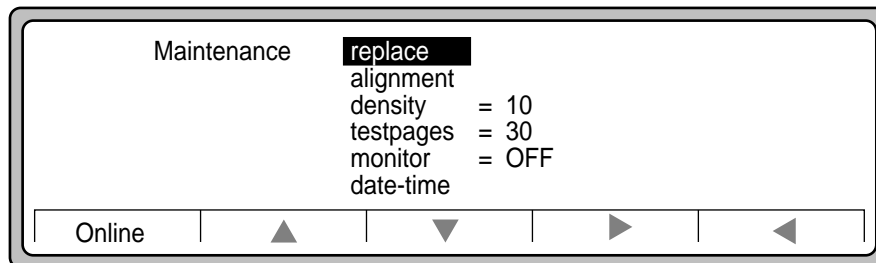

Figure 2-22 Maintenance selections

Replace		The Replace selection initiates the replacement procedure for the consumable items you are removing and replacing. Follow the instructions in "Overview of Consumable Supplies" on page 4-1 for replacing consumables.
Alignment.tray1, tray2, tray3, hci, duplex, and duplexv	Sets the alignment correction values. See "Using Virtual Font Cartridges" on page 6-26 for the paper path alignment procedure.	
Density	1 (min) = 10 15 (max)	This setting specifies the relative darkness of the print on a scale of 1 to 15, with 15 being the darkest setting. Gray scale patterns show the most visible effect. The effect of changing Density can be seen immediately. **Note:** The higher the density number, the quicker toner is used. To conserve toner, use a lower setting.
Testpages	cont 1 (min) = 30 30000 (max)	Sets the number of pages printed when you print the testpage in the Test menu. The cont selection causes printing to continue until you press End and select ABANDON.
Monitor	= OFF ON	Turns on a special area on the Control Panel which displays printer registers. This should only be set to ON when directed by your service provider for troubleshooting.
Date-Time	minute =0-59 hour = 0-23 date = 1-31 month = JAN-DEC year = (last 2 digits of year)	Sets the current date and time. The date and time is displayed on the Control Panel and printed on all test reports.

Control Panel

PapSize Menu Settings

PapSize provides access to configure the paper size in the input trays and the HCI.

When you see pointers on the screen pointing up or down, that indicates there are additional selections available by using ▲ or ▼ to access them.

In the table below, * indicates that a setting is present only if required option is installed (HCI, HCO, PostScript). The equals sign (=) indicates the factory default value.
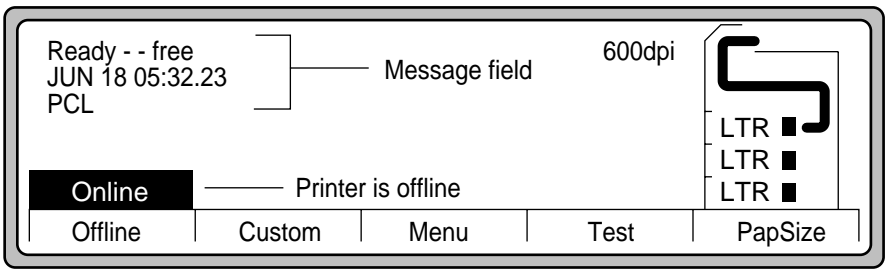
Figure 2-23   PapSize Button
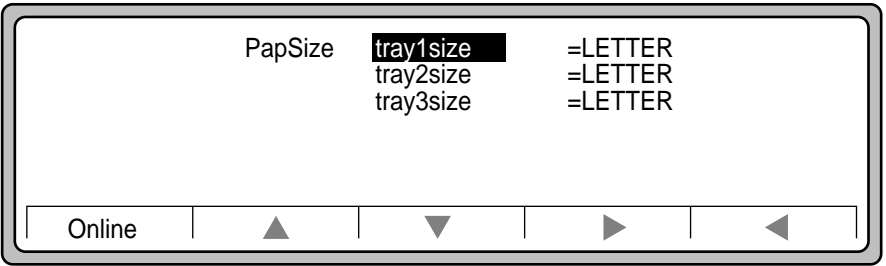
Figure 2-24   PapSize selections

Note   The printer does not automatically sense the size of the paper installed in the trays. You must set the size into the menu settings. If you change the size of the paper, change the associated menu setting.

Tray1size Tray2size Tray3size *HCIsize	=LETTER LEGAL LEDGER EXECUTIVE A4 A5 A3 JISB4 JISB5 CUSTOM	Sets the paper size for tray1, tray2, tray3 and the HCI (if installed). The HCIsize setting only indicates letter or A4 as these are the only sizes supported by the HCI.

Control Panel

Test Menu Settings

The Test menu provides access to various print reports and file operations. Use the Test functions to print out Setup, Maintenance, and Configuration reports, and also to access files on the D640's floppy drive and internal hard disk.

The Test functions are shown in Figure 2-25 and Figure 2-26.

"Printing Reports" on page E-1 provides the procedure for printing out the Setups, Maintenance, Fonts, Table, Menus, and Testprint reports.
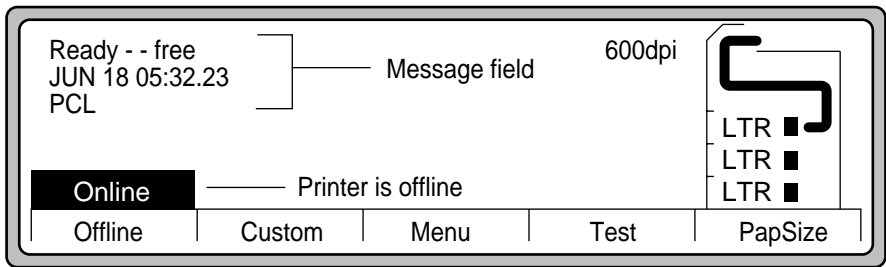
Figure 2-25   Test Function Button
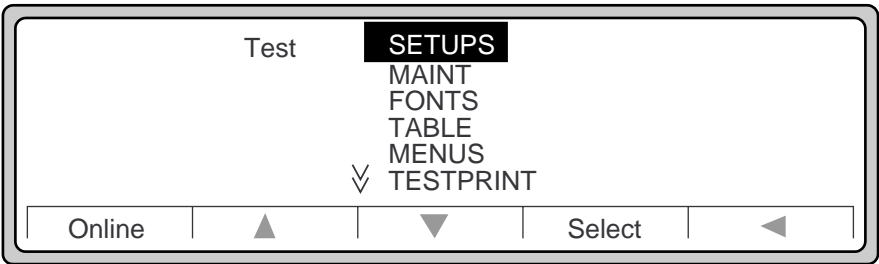
Figure 2-26   Test selections

Report Name	Report Contents
SETUPS Report	• Printing Menu lists the current print job requirements. • Configuration Menu lists the printer's image processing requirements. • PCL Menu lists font characteristics. • Comms Menu lists printer interface communication requirements. • Maintenance Menu lists printer alignment characteristics that affect images. • PapSize Menu lists current paper sizes in each tray. • Printer Information lists the printer's buffer information for maintenance purposes. • Drive A floppy diskette; (3.5 inch floppy drive) shows floppy status (installed/not installed). • Drive C (hard drive) lists the hard drive characteristics.
MAINT	• Engine Status lists maintenance information. • Maintenance Counters list the consumables usage by based on drum revolutions and duty cycle. The numbers are based on life expectancy of these consumables. You are responsible for maintenance of these consumables on a schedule presented in "Maintenance" on page 5-1. • Event Log lists all printer-captured events (such as paper jams and errors) and the time and date consumables are replaced.
FONTS	Typeface Report lists all available typefaces currently installed in the D640's virtual cartridges.
TABLE	Table provides images and programming codes for each available typeface.
MENUS	Menus provides all current menu settings.
TESTPRINT	Testprint provides a ripple test pattern.
filesA	filesA is the printer's 3.5 inch floppy disk drive (FDD) A-drive for inputting information.
filesC	filesC is the printer's C-drive (hard disk drive or HDD) list of directories and files.

Control Panel

3

Printer Tasks

Introduction

This chapter guides you through common tasks associated with frequent use of the printer.

Printer Tasks

Removing and Installing the Paper Trays

1. Pull out the standard tray as shown in Figure 3-1.
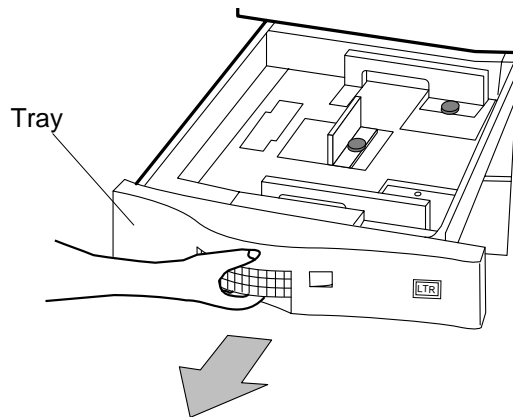
Tray

Figure 3-1   Pulling out Standard Tray

2. Install the standard tray by sliding it back in.
3. Pull out the custom tray as shown in Figure 3-3. Angle the tray up slightly until it disengages the tray guides on either side of the printer, then remove the tray as if it were a standard tray.
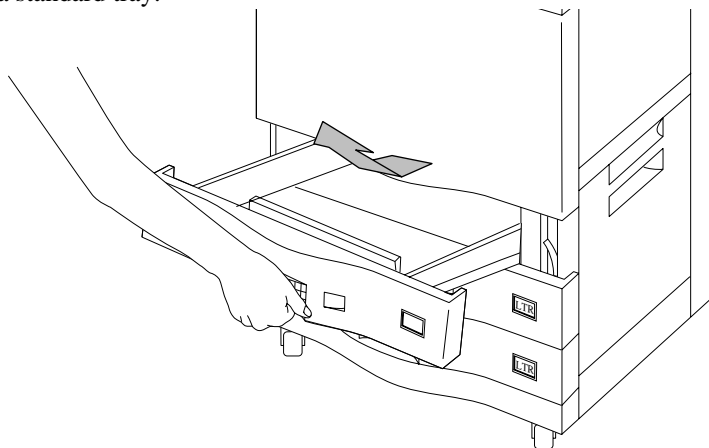
Figure 3-2   Pulling out Custom Tray

4. Install the custom tray as shown in Figure 3-3. Angle the tray down slightly until it engages the tray guides on either side of the printer, then push the tray in as if it were a standard tray.
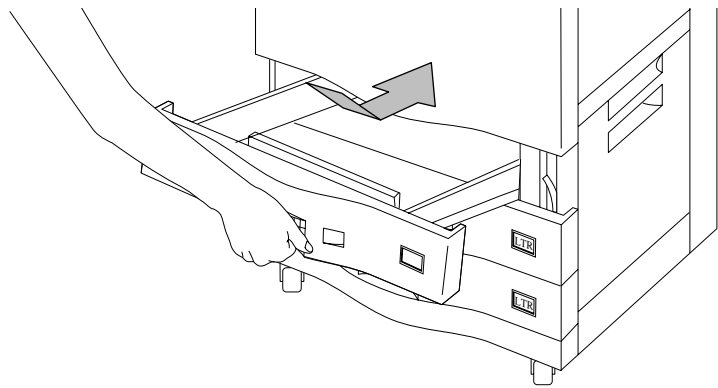
Figure 3-3   Installing Custom Tray

Adjusting Standard Tray Paper Guides

The printer's standard tray accepts all the standard paper formats listed in and illustrated in Figure 3-4. A set of moveable paper positioning guides lock into place in the paper trays, with the paper size visible through a cutout on the guide.

Table 3-1   Paper size settings in Standard Tray

Category	Dimensions
Letter	8.5 x 11 in (216 x 279 mm)
Legal	8.5 x 14 in (216 x 356 mm)
Ledger	11 x 17 in (280 x 432 mm)
Executive	7.25 x 10.5 in (184 x 267 mm)
A3	11.69 x 16.53 in (297 x 420 mm)
A4	8.26 x 11.69 in (210 x 297 mm)
A5	5.84 x 8.26 in (149 x 210 mm)
B4 (JIS)	10.11 x 14.32 in (257 x 364 mm)
B5 (JIS)	7.16 x 10.11 in (182 x 257 mm)
* LGR note: Ledger paper extends across the entire tray bottom. When you install ledger paper, lift and remove the left guide and store it in the molded pocket (located on front panel) labeled LGR. JIS: Japan Industrial Standards Committee	

Printer Tasks

Figure 3-4   Paper Sizes quick reference

1. Each paper guide has a blue locking thumbwheel, as shown in Figure 3-5.
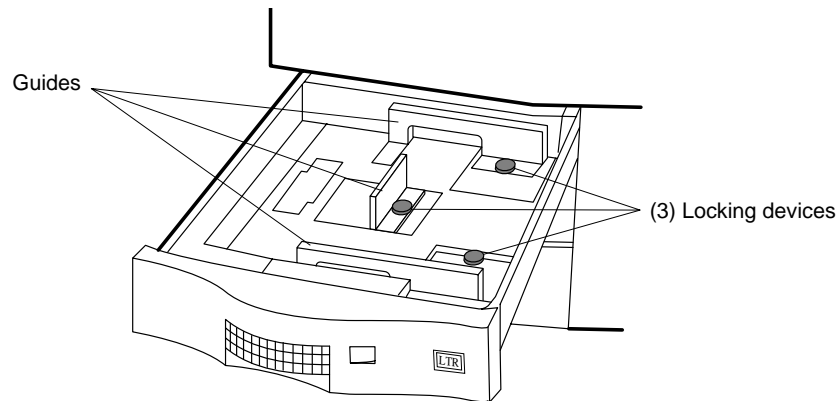
Figure 3-5   Paper guides

2. Turn the blue locking thumbwheels on each paper guide counterclockwise to the OPEN position (Figure 3-6).
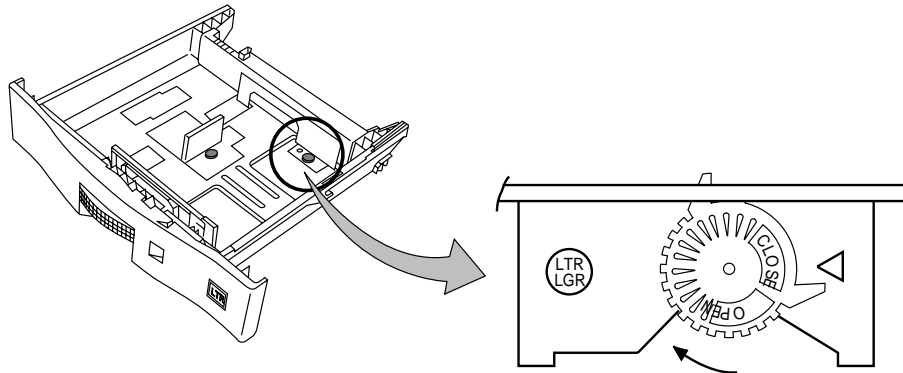
Figure 3-6   Locking device

Lift paper guides out of their current locations and place them in the new paper size locations. The paper size indicators on the tray are visible through the round circle cutout on the paper guide, as shown in Figure 3-7.

Printer Tasks

Figure 3-7   Paper guide size selection

3. Adjust both paper guides for the same paper size.
4. Turn the blue locking thumbwheels on each paper guide clockwise to the CLOSE position to secure it. (Figure 3-8).
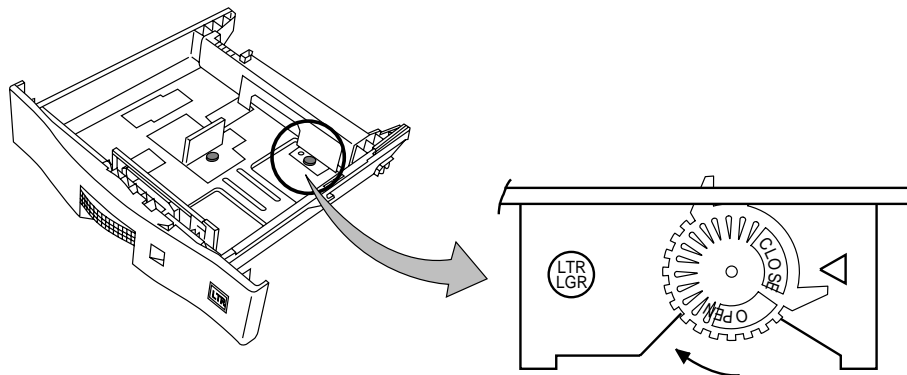
Figure 3-8   Securing the paper guide

Setting Standard Paper Sizes

Use the PapSize setting to configure the printer for the size of paper installed in each paper source.

Note The D640 does not detect paper size. You must visually check each drawer to verify that it contains the correct paper.

---

1. At the Main Screen, press PapSize. Figure 3-9 appears.

```
              PapSize    tray1size    =LETTER
                         tray2size    =LETTER
                         tray3size    =LETTER



    Online        ▲          ▼           ▶          ◀
```
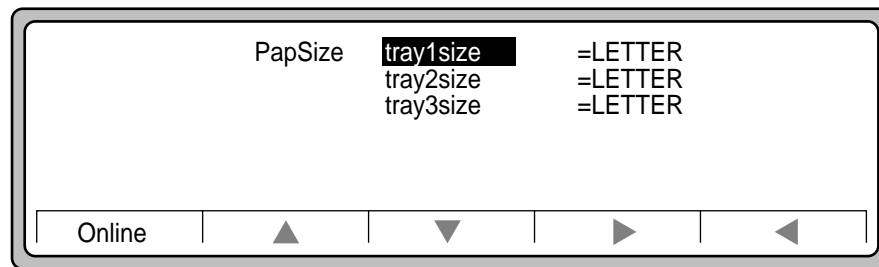
Figure 3-9   PapSize

2. Verify that all trays have the correct paper size loaded.
3. Select the drawer using ▼. The selection is highlighted (for example, tray1size).
4. Press ▶ and a list of sizes appears on the Control Panel (Figure 3-10).

Contination arrows

```
              tray1size =  LETTER
                           LEGAL
                           LEDGER
                           EXECUTIVE
                           A4
                        ⋁  A5
    Online        ▲          ▼        Select        ◀
```
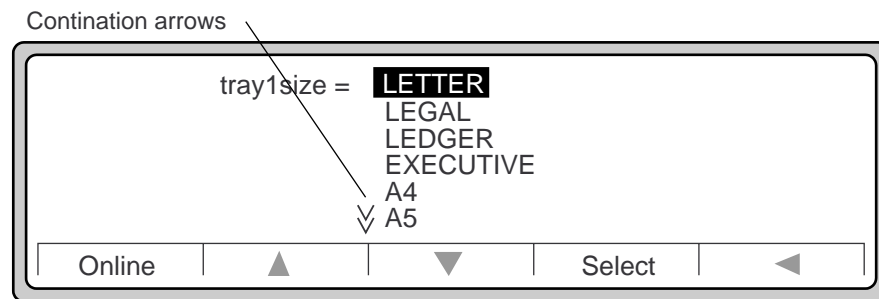
Figure 3-10   Paper Size Selection

Printer Tasks

5.   Use ▲ or ▼ to move to the correct paper size (Figure 3-11).

```
┌─────────────────────────────────────────────────────┐
│                                                       │
│          tray1size   ⩓ A3                             │
│                        JISB4                          │
│                        JISB5                          │
│                        CUSTOM                         │
│                                                       │
│  ┌─────────┬───────────┬──────────┬─────────┬───────┐ │
│  │ Online  │    ▲      │    ▼     │ Select  │   ◀   │ │
│  └─────────┴───────────┴──────────┴─────────┴───────┘ │
└─────────────────────────────────────────────────────┘
```
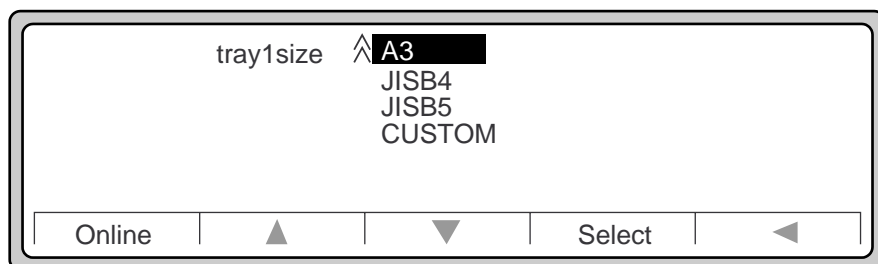
Figure 3-11   Paper size selection continuation

6.   Press Select to choose the desired size and then press Online to save your choice and return to a Ready -- Free state.

Adjusting Custom Tray Paper Guides

Note   The D640 printer does not support printing on envelopes. Do not use the custom paper tray to feed envelopes or paper jams will result.

Note   You can use standard paper sizes in the custom trays. Set the Control Panel settings to the standard paper size, not the custom size.

The custom paper tray (product number C5634A) holds paper that has minimum dimensions of 4.75 x 7.2 in (120 x 182 mm) up to 11.7 x 17 in (297 x 431.8 mm). For additional information regarding paper stock, see "Using Paper" on page D-1.

1. Adjust the guides to the size of your paper. Figure 3-12 shows the adjustment guide travel directions.

Thumbscrews to adjust
left guide (finger tighten)

Squeeze lever to release
front and rear guides
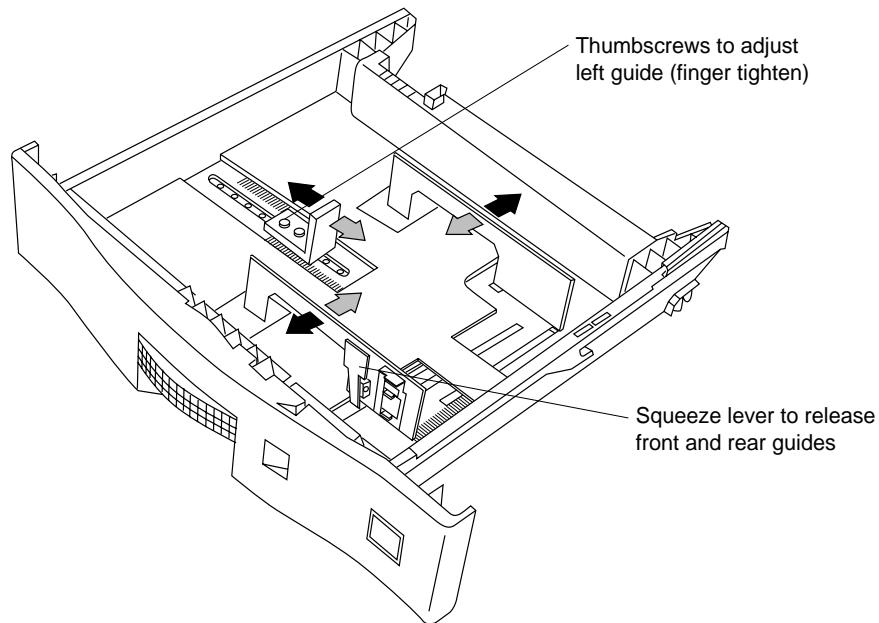
Figure 3-12   Custom Paper Tray guide adjustments

2. Load the paper in the tray as described in "Loading Paper Into Trays and HCI" on page 3-16.
3. Do not stack the paper above the "paper full" mark, as this may cause paper jams or skewed print.

Note   Never mix the types of paper loaded in a tray. Intermixing paper can result in paper handling problems.

4. Adjust the guides to fit closely, but not too tightly. A tight fit binds the paper and can cause misfeeds.

Printer Tasks

Setting Custom Paper Sizes

The custom paper tray can accommodate a wide range of paper sizes, using continuously adjustable paper guides.

The custom paper tray can accommodate paper stock as small as 4.75 x 7.2 inches (120 x 182 mm) or as large as 11.7 x 17 inches (297 x 431.8 mm). You can install one or more custom trays in the printer, but they must all be set to the same size.

There are two tasks in setting up custom paper sizes in the custom tray:

• Define the custom tray.

• Set the paper size in the printer menu settings. (Save the dimensions and menu numbers in case you must refill the tray at some other time.)

1. To specify a tray as the custom tray, press PapSize on the Main Screen (Figure 3-13) to display the screen shown in Figure 3-14. This display identifies the paper size in each tray.
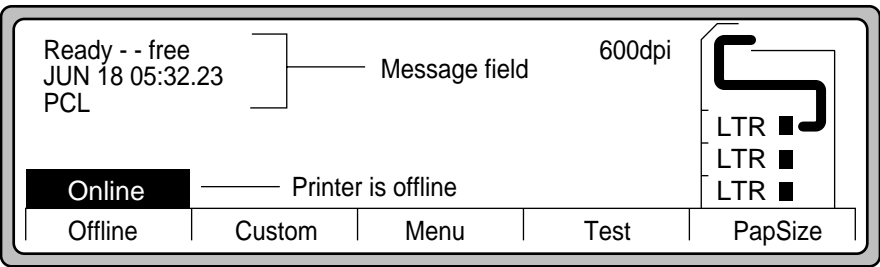
Figure 3-13   Main Screen

2. Press ▲ or ▼ to highlight the tray to define as a CUSTOM tray.
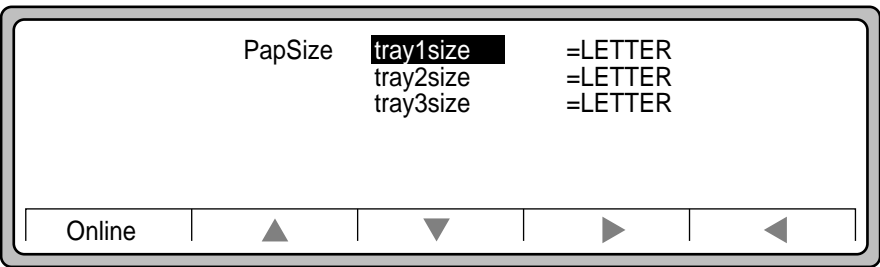
Figure 3-14   Paper tray selections

3. Press ► to get a list of paper sizes for this tray, as shown in Figure 3-15.

Contination arrows

```
             tray1size =  LETTER
                          LEGAL
                          LEDGER
                          EXECUTIVE
                          A4
                        ⋁ A5
  Online    │    ▲    │    ▼    │   Select   │   ◄
```
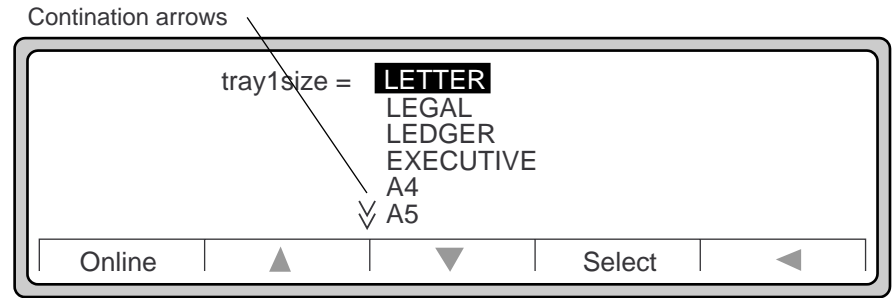
Figure 3-15   Paper size selections

4. Press ▼ to move to CUSTOM.
5. Press Select to define this CUSTOM paper size selection (Figure 3-16).

```
             tray1size   ⋀ A3
                           JISB4
                           JISB5
                           CUSTOM
  Online    │    ▲    │    ▼    │   Select   │   ◄
```
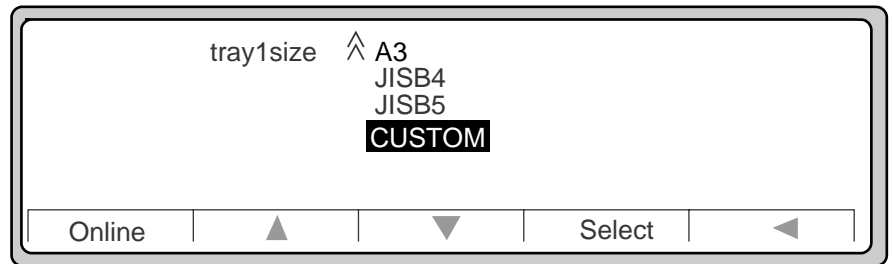
Figure 3-16   Paper size (continuation of selections)

6. Press Online to return to the Main Screen.

Configuring Custom Tray Menu Settings

You must first interpret your paper dimensions into settings the printer can understand. Basically, you must accurately measure your paper's width and height (also called length) using standard inches (inches) or millimeters (mm), and converting the numbers into printer units.

For example, using a 5 x 8 inch card:

1. The card is printed with the short side (5 in) as the leading edge. The menu setting for the leading edge is width.You could also select the long side as the width.
2. The 8 inch side is height. You could also select the short side as the height.

Printer Tasks

3. The printer has many printer unit options. (A unit is simply a measure of size used to give you fine control over image placement on the page.)

    For most jobs sized in inches, use 1/100" as the unit size.

4. Multiply your paper height (length) by the number of units per inch (in our example, 100 x 8 = 800).

    If you use a unit size of 1/200", the number would be 1600; if the unit size was 1/720", the number would be 5760, and so on. If you are using the mm unit setting, no multiplication is necessary.

5. Multiply your paper width by the number of units per inch (in our example, 100 x 5 = 500).

6. Press Menu on the Main Screen to display the Menu options, shown in Figure 3-17.
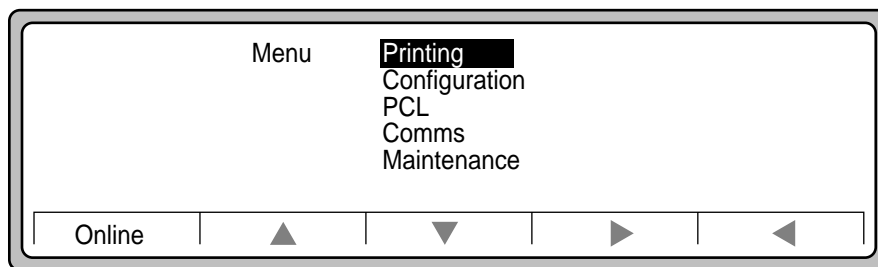
Figure 3-17 Menu options

7. Press ▼ to highlight Configuration.
8. Press ► to get Configuration options (Figure 3-18).
9. Press ▼ to select units. (Figure 3-18).
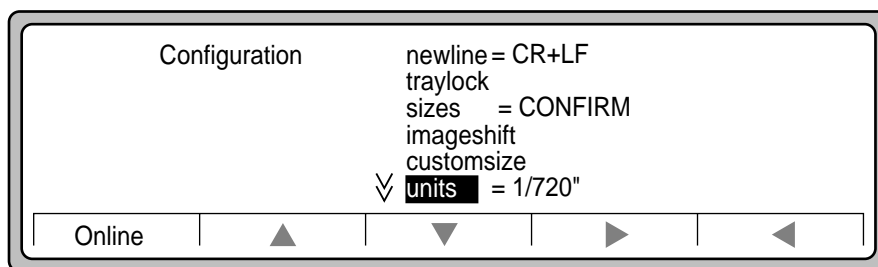
Figure 3-18 Configuration options

10. Press ▲ or ▼ to select your unit size selections (Figure 3-19).

```
┌─────────────────────────────────────────────────────────┐
│                                                           │
│     Configuration.units        1/100"                     │
│                                1/200"                     │
│                                1/300"                     │
│                                1/600"                     │
│                           =  ▓1/720"▓                     │
│                                MM                         │
│   ┌────────┬────────┬────────┬────────────┬────────┐     │
│   │ Online │   ▲    │   ▼    │  Select    │   ◀    │     │
│   └────────┴────────┴────────┴────────────┴────────┘     │
└─────────────────────────────────────────────────────────┘
```
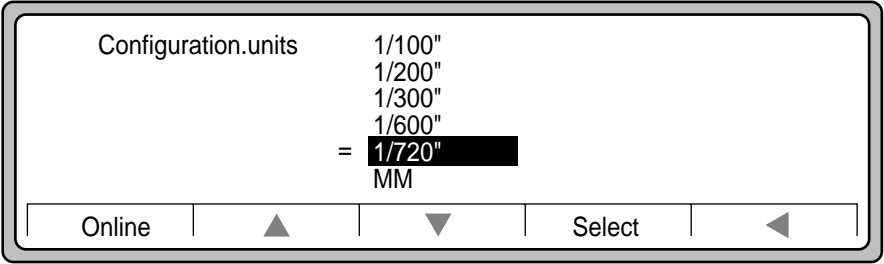
Figure 3-19   Unit size selections

11. In our example, 1/100" is highlighted (Figure 3-20).

```
┌─────────────────────────────────────────────────────────┐
│                                                           │
│     Configuration.units       ▓1/100"▓                    │
│                                1/200"                     │
│                                1/300"                     │
│                                1/600"                     │
│                                1/720"                     │
│                                MM                         │
│   ┌────────┬────────┬────────┬────────────┬────────┐     │
│   │ Online │   ▲    │   ▼    │  Select    │   ◀    │     │
│   └────────┴────────┴────────┴────────────┴────────┘     │
└─────────────────────────────────────────────────────────┘
```
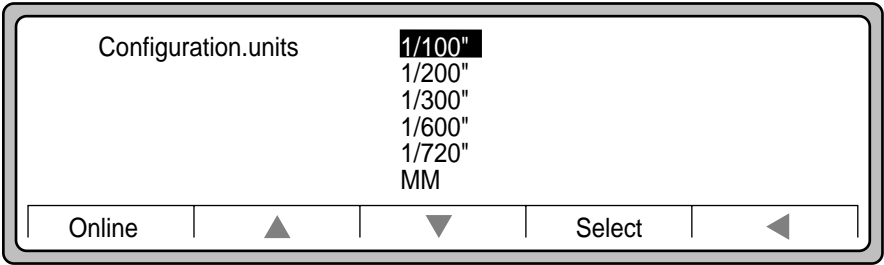
Figure 3-20   Highlighting 1/100"

12. Press Select. Figure 3-20 is displayed.
13. Press ▲ to highlight customsize (Figure 3-21).

```
┌─────────────────────────────────────────────────────────┐
│                                                           │
│     Configuration          newline = CR+LF                │
│                            traylock                       │
│                            sizes = CONFIRM                │
│                            imageshift                      │
│                           ▓customsize▓                    │
│                        ⋁  units = 1/100"                  │
│   ┌────────┬────────┬────────┬────────────┬────────┐     │
│   │ Online │   ▲    │   ▼    │     ▶      │   ◀    │     │
│   └────────┴────────┴────────┴────────────┴────────┘     │
└─────────────────────────────────────────────────────────┘
```
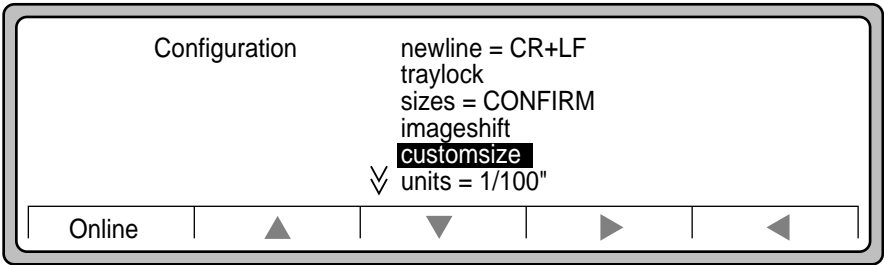
Figure 3-21   Customsize selection

14. Press ► to highlight width.

```
┌─────────────────────────────────────────────────────────┐
│  ┌─────────────────────────────────────────────────────┐ │
│  │  Configuration.customsize    [width] = 8416          │ │
│  │                              height = 12240          │ │
│  │                                                      │ │
│  │                                                      │ │
│  ├─────────┬────────┬────────┬────────┬────────────────┤ │
│  │ Online  │   ▲    │   ▼    │   ▶    │      ◀         │ │
│  └─────────┴────────┴────────┴────────┴────────────────┘ │
└─────────────────────────────────────────────────────────┘
```

Figure 3-22   Customsize width and height selections

15. Press ▲ or ▼ until your number is highlighted (our example is 500, as shown in Figure 3-23).

```
┌─────────────────────────────────────────────────────────┐
│  ┌─────────────────────────────────────────────────────┐ │
│  │  Configuration.customsize   ⌃ width    = [500]       │ │
│  │                                          501         │ │
│  │                                          502         │ │
│  │                                          503         │ │
│  │                                          504         │ │
│  │                             ⌄            505         │ │
│  ├─────────┬────────┬────────┬──────────┬──────────────┤ │
│  │ Online  │   ▲    │   ▼    │  Select  │      ◀       │ │
│  └─────────┴────────┴────────┴──────────┴──────────────┘ │
└─────────────────────────────────────────────────────────┘
```
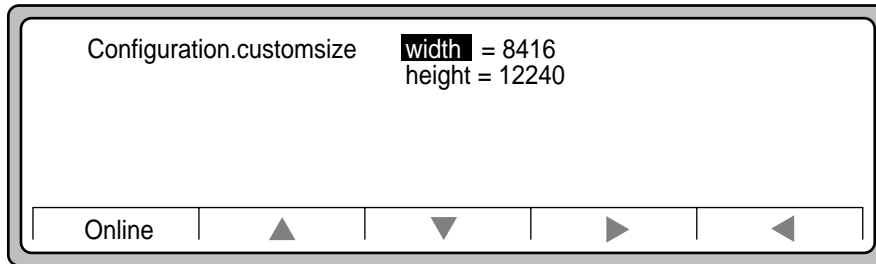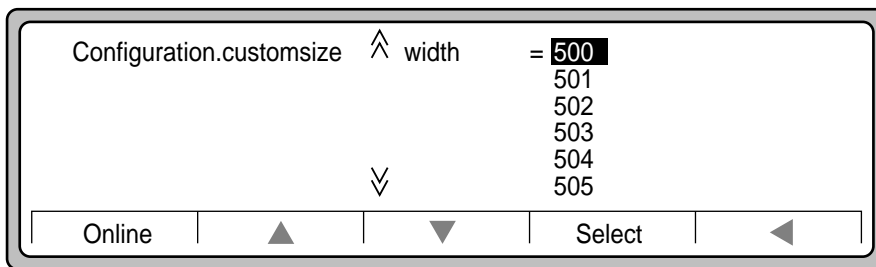
Figure 3-23   Width selection for custom paper size

16. Press Select.
17. Press ▼ to highlight height.

18. Press ▲ or ▼ until your number is highlighted (our example is 800, as shown in Figure 3-24).

```
Configuration.customsize  ᐱ  height = 800
                                      801
                                      802
                                      803
                                      804
                           ᐯ          805
  Save      |     ▲     |     ▼     |   Select   |     ◀
```
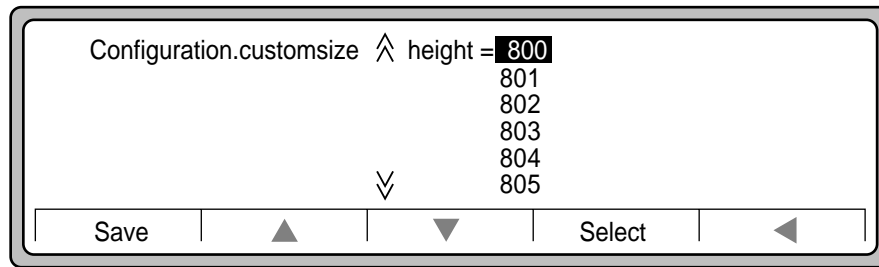
Figure 3-24   Height selection for Custom Paper Tray

19. Press Select.
20. Press Save.

Printer Tasks

Loading Paper Into Trays and HCI

This section explains the proper paper loading process, which depends on the type of paper used and the print job requirements.

Follow these basic guidelines to select and use paper and other media (transparencies, labels, etc.) for the D640:

- Use only paper labeled specifically for non-impact or laser printing, xerographic copying, or duplicating. Refer to "Media Selection Specifications and Guidelines" on page D-3 for complete media specifications.
- Use only one kind of paper in a tray at a time; mixing types of paper can cause jams.
- Do not overfill the paper trays or HCI (note the maximum fill line).
- The HCI is supported for use with paper media only.

Opening Paper

1. Remove the paper from the package, with the package seam side up, as shown in Figure 3-25. Read the manufacturer's packaging end-label and note the direction of the arrow. The arrow points to the side that should be printed first, also referred to as the face side.
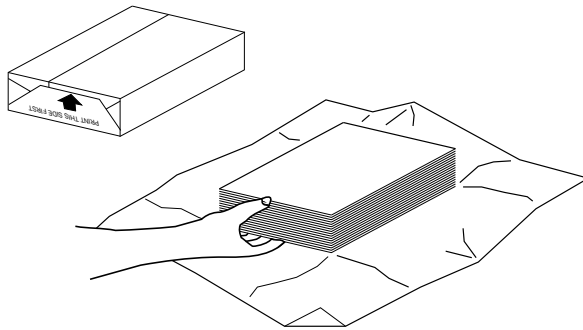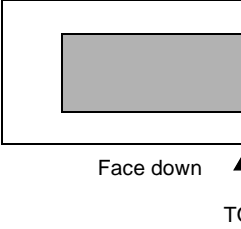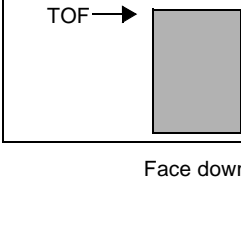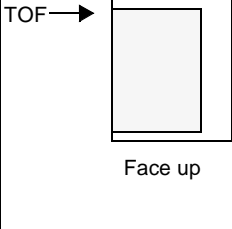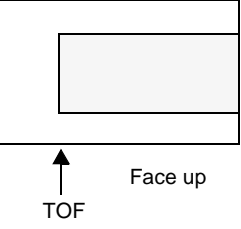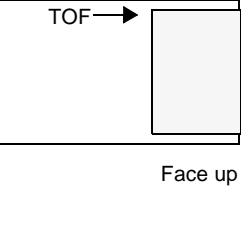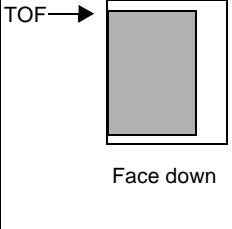

Figure 3-25   Removing paper from the package

2. Inspect the paper for indented or interlocked edges, bent corners, wrinkled sheets, and excess glue from the wrapper. Discard any damaged sheets.
3. Load the paper into the printer tray or HCI as recommended in the paper loading illustrations provided in Table 3-2.

Table 3-2   Paper orientation in trays and HCI

	Input Tray		HCI
	Short edge leading	**Long edge leading**	
Single-sided printing to output tray or Double-sided printing to HCO	Face down TOF	TOF → Face down	TOF → Face up
Double-sided printing to output tray **TOF = Top Of Form**	TOF Face up	TOF → Face up	TOF → Face down

Tip   Use the arrow on the paper package as a guideline for loading paper. For the HCI, load paper so that the arrow on the package is pointing upward. For trays, load paper so that the arrow on the package is pointing downward.

Printer Tasks

Locking Paper Trays

All paper sources with the same size of media are automatically linked together. This means that the printer will automatically switch to the next tray when the current tray runs out of paper. This could cause problems when all of the paper trays are set to the same size of paper, but contain different types of paper, such as plain paper and letterhead.

In order to eliminate the linking of trays, you must "lock" the trays you don't want selected unless the job gives a direct command to use paper from that source.

For example, if you have a tray with letterhead paper in it, you may want to lock out this tray so that if the other trays run out of paper, the letterhead paper tray would not be used.

The printer does not detect the paper size loaded in a particular tray.

Follow this procedure to lock a paper tray:

1. On the Main Screen, press Menu.
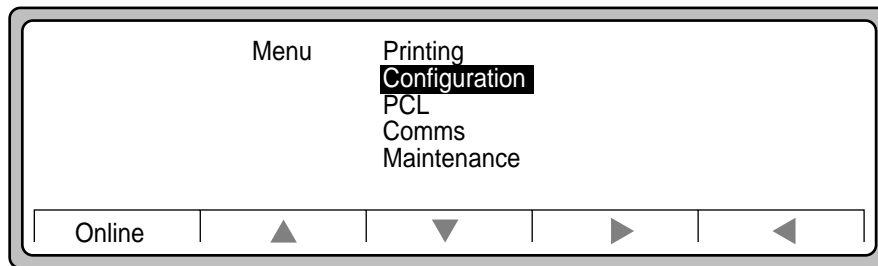2. Press ▼ to move to Configuration (Figure 3-26).

Figure 3-26   Configuration Menu

3. Press ▶ to select Configuration.
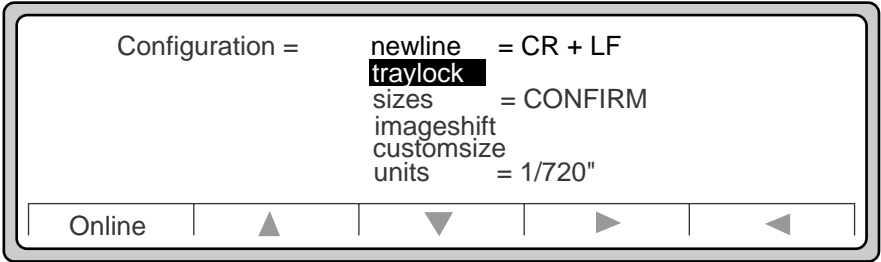
4.   Press ▼ to move to traylock (Figure 3-26).

```
Configuration =        newline    = CR + LF
                       traylock
                       sizes      = CONFIRM
                       imageshift
                       customsize
                       units      = 1/720"

  Online      ▲          ▼          ▶          ◀
```

Figure 3-27   traylock

5.   Press ▶ to select traylock.
6.   Press ▲ or ▼ to move to the tray to lock (Figure 3-28).

```
Configuration.traylock    tray1      =UNLOCKED
                          tray2      =UNLOCKED
                          tray3      =UNLOCKED


  Online      ▲          ▼          ▶          ◀
```
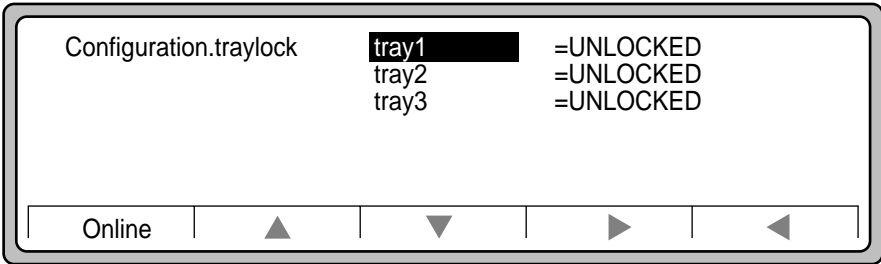
Figure 3-28   Configuration.traylock

Printer Tasks

7. For example, if you want to lock tray1, press ▶ to select tray1**.** (See the screen in Figure 3-29**.)**

```
┌─────────────────────────────────────────────────────────┐
│  ╔═══════════════════════════════════════════════════╗  │
│                                                          │
│   Configuration.traylock.tray1 =    tray1 = UNLOCKED     │
│                                             LOCKED       │
│                                                          │
│                                                          │
│   ┌─────────┬─────────┬─────────┬─────────┬─────────┐   │
│   │ Online  │    ▲    │    ▼    │ Select  │    ◀    │   │
│                                                          │
└─────────────────────────────────────────────────────────┘
```
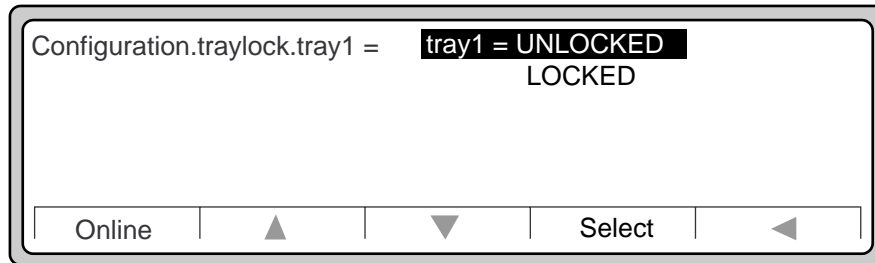
Figure 3-29   Configuration.traylock.tray1

8. Press ▼ to move to locked.
9. Press Select. You return to the Configuration.traylock screen with tray1 locked (Figure 3-30).
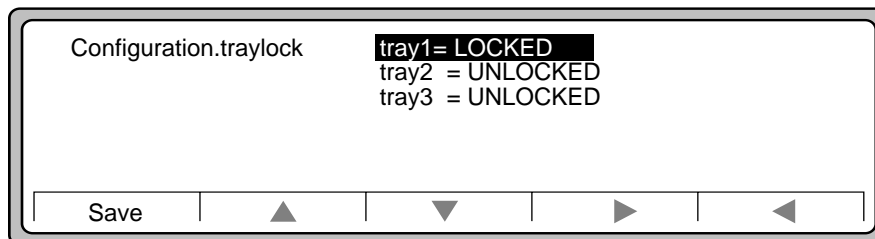
```
┌─────────────────────────────────────────────────────────┐
│  ╔═══════════════════════════════════════════════════╗  │
│                                                          │
│   Configuration.traylock          tray1= LOCKED          │
│                                   tray2  = UNLOCKED      │
│                                   tray3  = UNLOCKED      │
│                                                          │
│   ┌─────────┬─────────┬─────────┬─────────┬─────────┐   │
│   │  Save   │    ▲    │    ▼    │    ▶    │    ◀    │   │
│                                                          │
└─────────────────────────────────────────────────────────┘
```

Figure 3-30   Tray 1 locked

10. Press Save to save the changes in PwrOnConfig.

Stopping or Interrupting Print Jobs

The printer works in three basic states: processing incoming data, imaging the data, and printing the data. When the printer is in one of these states, the Main Screen changes to reflect the new state, as shown in Figure 3-31, and the Test button changes to the End button.
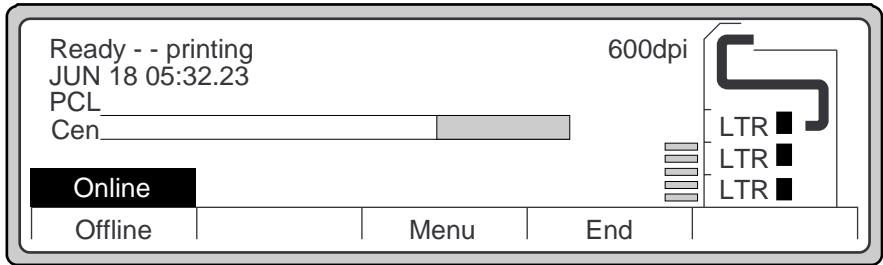

Figure 3-31   End Button

If you want to stop or interrupt the print job in progress, press the End button. When you press End, you will see the End submenu, as shown in Figure 3-32.
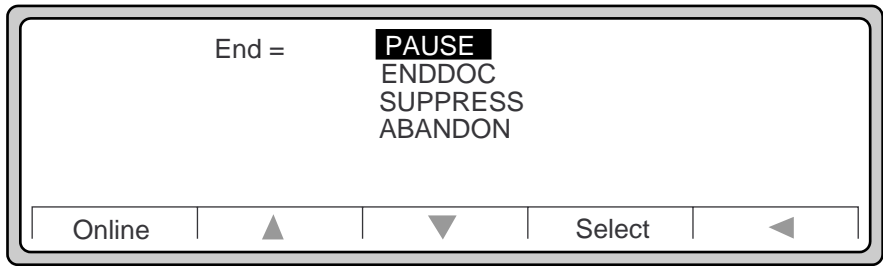
Figure 3-32   End Submenu

The choices available are:

PAUSE	Temporarily stops the job. Use this to pause the printer, such as when adding or removing paper or adding toner.
ENDDOC	Any incomplete or partial pages are printed (like a form feed or page eject). The job ends normally and the printer is ready for another job. This is typically used when the print job has no end-of-job command, and the Control Panel displays Ready -- wait for a long time.
SUPPRESS	Continues to process the current job, but the resulting pages are not printed. Printing resumes with the next job. Select SUPPRESS when you no longer want to print the current job, but you want to retain data, such as downloaded fonts and macros, needed for future jobs. SUPPRESS is the recommended way to end routine print jobs.
ABANDON	Ends processing of the current job and clears all data in the input buffer. This is the most direct, quickest, and potentially risky way of stopping a current job. Use ABANDON only when you are certain that the data in the print job is not required by future print jobs.

Clearing a Paper Jam

When you start a print job, the printer selects paper, a page at a time, from one of the internal trays or from the external HCI. Paper jams may occur if the paper is wrinkled, folded, skewed, or out of specification. The printer goes Offline until the paper jam is cleared.

When a jam occurs, refer to the Control Panel for a visual and written description of the jam location. For a visual indication refer to the picture on the right side of the Control Panel. The area in the paper path where the jam occurred will be blinking.

More than one sheet of paper may be located in the paper path; all sheets must be removed before the printer will resume printing.

In this case, the paper path diagram may continue blinking in the same or another location, and the printer displays messages about the location of remaining sheets until all jams are cleared.

Note   The printer is forced Offline until the problem is fixed.

Table 3-3 lists each paper jam that displays on the Control Panel and how to clear the jam. More detailed information on clearing paper jams appears on the pages listed. You can also refer to the illustrated jam clearing pictures located on the inside of the printer's front door.

Table 3-3   Paper jams and remedies

Paper Jam Messages	Remedy	Refer to page
Paper Input Jams		
TRAY1 Pick error **TRAY2 Pick error** **TRAY3 Pick error**	Remove tray (1, 2, or 3), remove paper jam from paper entry area and/or within tray.	3-24
Feed jam 1	Open the front door, lower transfer assembly, rotate knob 1 counterclockwise and knob 2 clockwise to free paper, remove jammed paper.	3-26
Feed jam 2	Open the side door, remove jammed paper.	3-26
HCI jam 1	Open HCI, lower paper, remove jammed paper.	3-32
HCI jam 2	Pull HCI away from printer, remove jammed paper.	3-34
HCI jam 3	Pull HCI away from printer, remove jammed paper.	3-34
HCI jam 4	Open the front door, lower transfer assembly, rotate knob 1 counterclockwise and knob 2 clockwise to free paper, remove jammed paper.	3-26
Paper Path Jams		
Fuser unit jam 1 **Fuser unit jam 2**	Open the front door, lower transfer assembly, open lever 4, push decurler lever down, remove jammed paper to the right.	3-36
Duplex path jam 1 **Duplex path jam 2**	Open the front door, raise lever 6, and remove jammed paper. You may need to turn duplex roller knob to release the paper.	3-38
Print unit path jam	(Reversing unit area jam) Open the front door, open lever 4, hold lever 5 away from the fuser, and remove jammed paper. You may need to turn duplex roller knob to release the paper.	3-40
Paper Output Jams		
Ejection unit jam 1 **Ejection unit jam 2**	Raise the paper ejection cover and remove jammed paper.	3-43
HCO jam 1 **HCO jam 2**	Open the HCO door, rotate roller knob 1 to free paper, then lift levers to remove paper.	3-45

Printer Tasks

Clearing Paper Input Jams

Clearing a Tray Pick Error Jam

When the printer tries to load a sheet of paper from one the paper trays and encounters a picking problem, the Control Panel shows a blinking section at the output of the problem tray as shown in Figure 3-33.
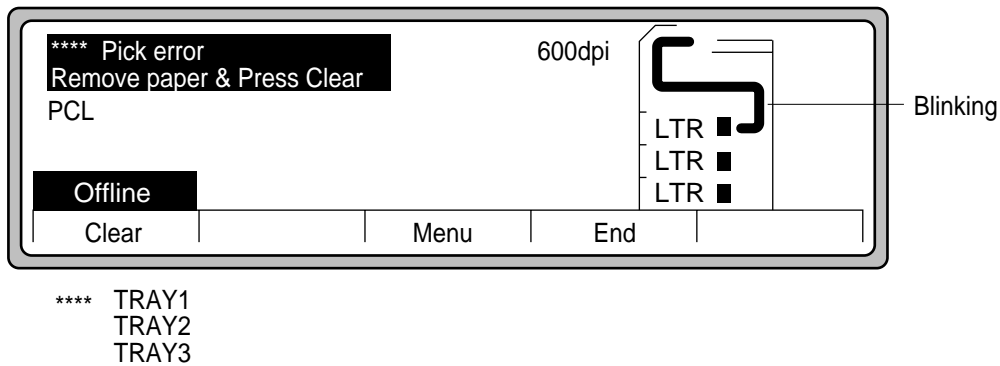

Figure 3-33   Pick error jam indication

To clear the tray pick error:

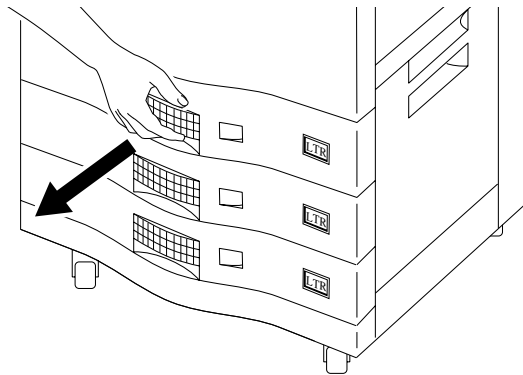1. Open the indicated paper tray, as shown in Figure 3-34.

Figure 3-34   Opening paper tray

2. Examine the right side of the tray area, particularly the extreme upper right, where the paper leaves the tray and is pulled into the paper path. There may be one or more pieces of paper jammed in it. If there is no obvious jam, reach up into the upper right corner of the tray, feel for paper stuck there, and remove any jammed paper. Pull gently, as the paper could tear. Refer to Figure 3-35.

3. If you do not find any jammed paper, open the lower right cover and check for paper.

Lower right cover
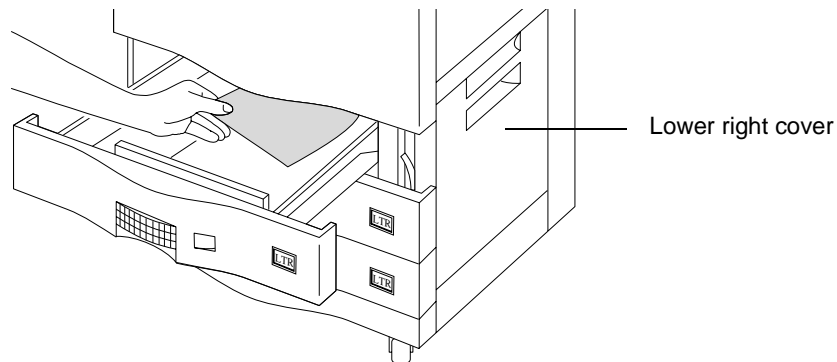
Figure 3-35   Removing paper jam from tray area

4. Press Clear. If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Printer Tasks

Clearing a Feed Path Paper Jam

The feed path paper jam paper path is the path between the paper feed unit (pulls paper from the trays or HCI) and the drum unit. A jam in this area will display feed path jam 1, jam 2 or jam 4 depending on where the jam physically occurs.

Figure 3-36 shows the location of the Feed path paper jam indication on the Control Panel.
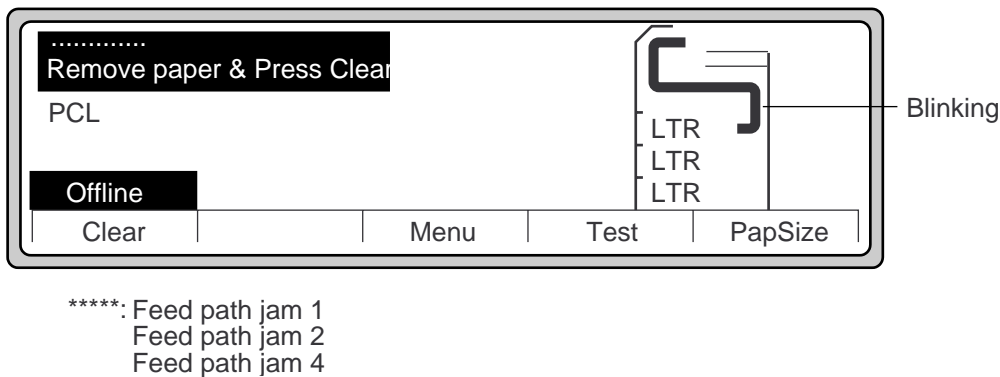

....
Remove paper & Press Clear

PCL

Offline

| Clear | | | Menu | Test | PapSize |

LTR
LTR
LTR

Blinking

*****: Feed path jam 1
Feed path jam 2
Feed path jam 4

Figure 3-36   Feed path paper jam indication

1. Lower the right-side lower cover (Figure 3-37). If you have an HCI installed, unlatch the HCI and slide it away from the printer (Figure 3-38).

2. Look for paper caught in the paper feed path at the top of the lower right cover opening. Only a small area of the paper may be visible. If you see paper, remove it.
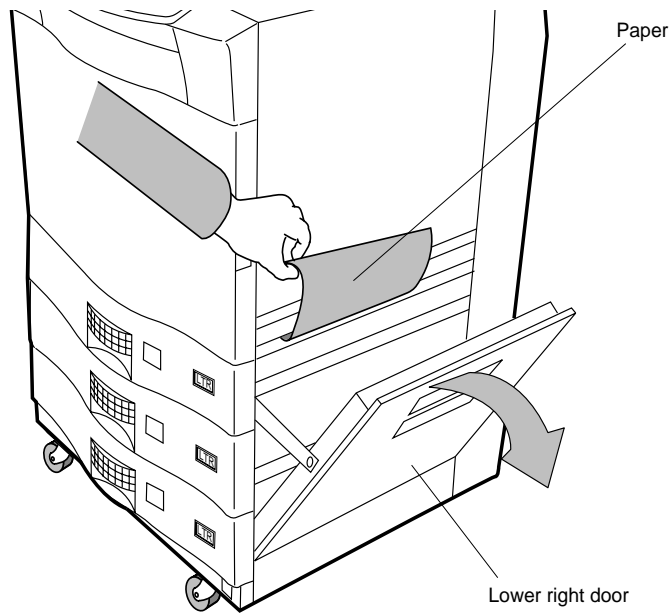
Figure 3-37   Removing paper from side door opening
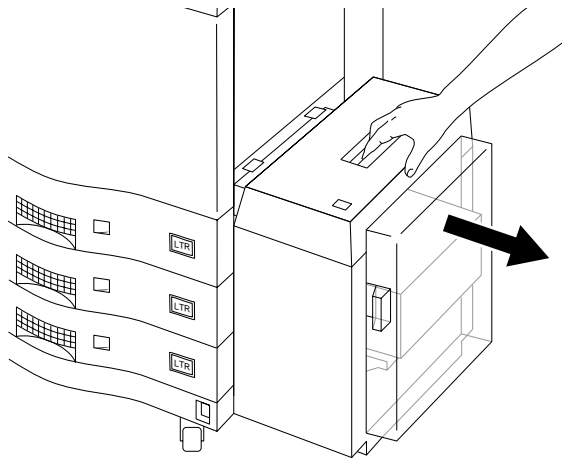
Figure 3-38   Unlatching the HCI

Printer Tasks

3. If there is no paper there, close the door and if applicable, push the HCI inward to relatch it.

4. Open the front door. Note that the inside of the front door has a set of labels showing various paper jam remedy procedures. Use these as a guide to clearing paper jams.

5. Refer to Figure 3-39. Pull out gently on Handle 3 to unlatch and release the Transfer Guide. Gently lower the Transfer Guide and let it rest on the bottom of the printer's interior.

Handle 3
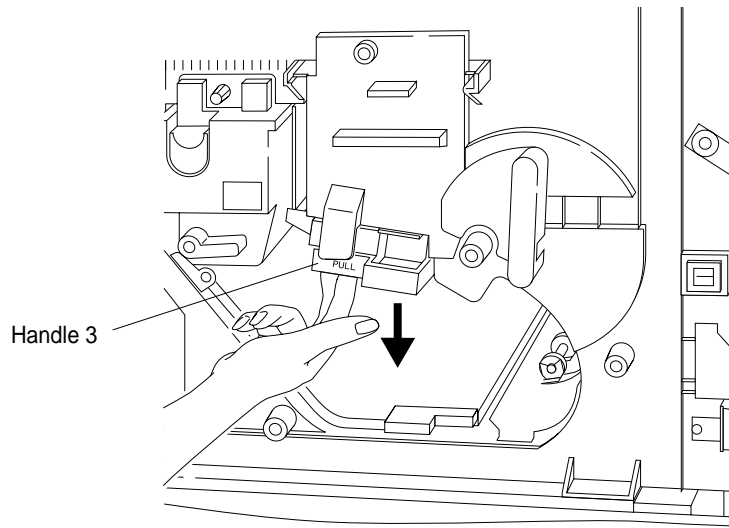
Figure 3-39   Lowering Transfer Assembly

6. If you can see the paper jam, reach up and remove it, as shown in Figure 3-40.
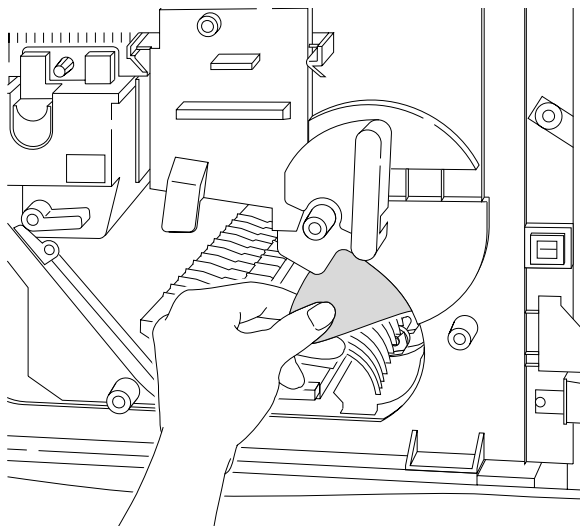
Figure 3-40   Paper removed from under Drum Unit

7. If the paper is not visible, reach into the area indicated in Figure 3-40 and feel for it.
8. Turn knob 1 counterclockwise and knob 2 clockwise to move paper into position for removal, as shown in Figure 3-41.

Printer Tasks

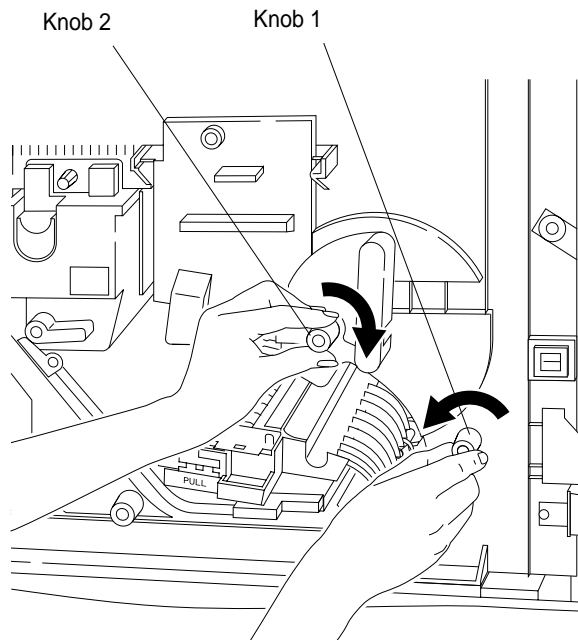Knob 2   Knob 1

Figure 3-41   Turning Knobs 1 and 2

9. If paper is visible, reach in and remove it. If it is not visible, you may need to reach in
    and search by hand.

⚠ **Caution**   Remove any jewelry on your hand or wrist before reaching into the printer. Be
careful not to scratch the drum as you feel for the paper.

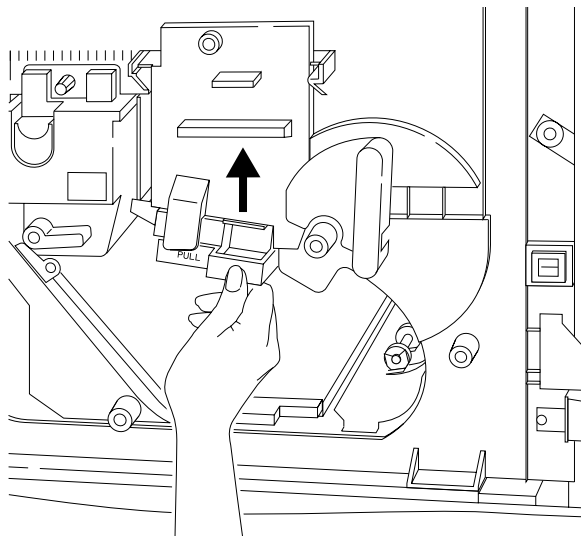10. Raise the Transfer Guide until it latches into position, as shown in Figure 3-42, and close the door.

Figure 3-42   Replacing Transfer Assembly

11. If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Printer Tasks

Clearing HCI Jams

When the printer tries to obtain a sheet of paper from the HCI and the paper fails to load properly, this is an HCI paper jam. This is indicated on the Control Panel by the blinking paper path shown in Figure 3-43.

- HCI jam 1(pick error), a jam where the paper did not leave the HCI correctly.
- HCI jam 2 (jam), a jam where the paper did not enter the printer correctly.
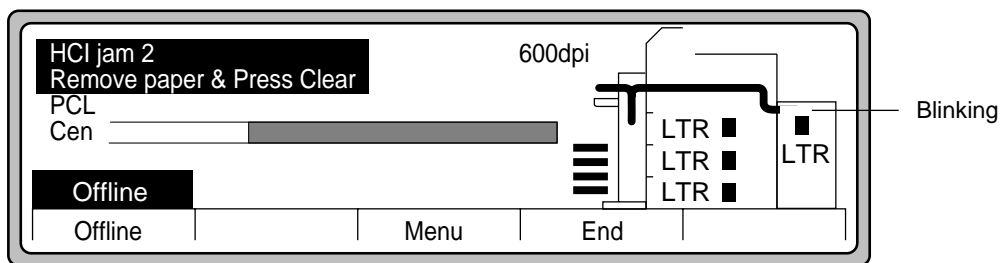- HCI jam 3 (jam), a jam where the paper is between the printer and the HCI.

Figure 3-43   HCI paper path jam indication

Clearing HCI Jam 1

1. If the Control Panel indicates an HCI jam 1 (a pick error), open the HCI door as shown in Figure 3-44. Press the button on top of the HCI to lower the paper stack.
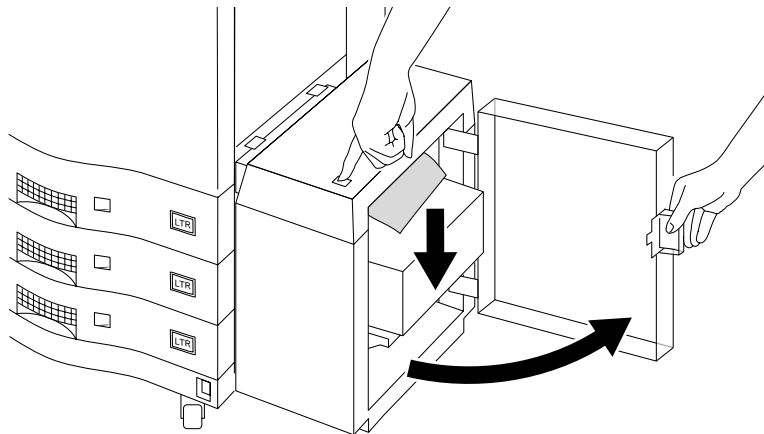

Figure 3-44   Opening the HCI door

2. Inspect the top of the HCI paper stack for jammed paper and remove any sheets that are stuck in the paper ejection area or which look crumpled or otherwise defective, as shown in Figure 3-45.
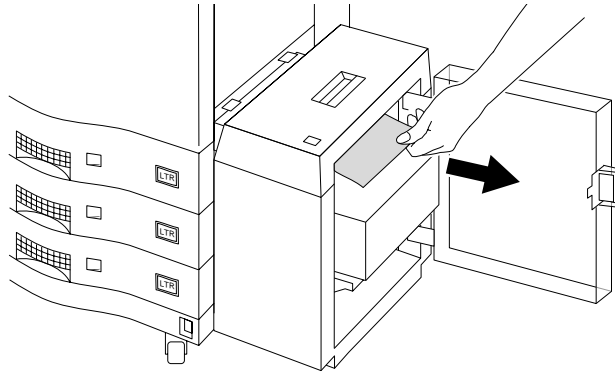

Figure 3-45 Removing paper from HCI

3. Close the HCI door as shown in Figure 3-46. The paper rises up to the operating position automatically.
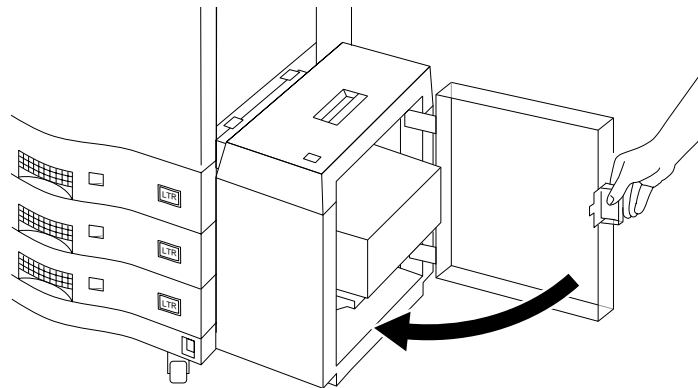

Figure 3-46 Closing the HCI door

4. Press Clear. If there is no paper jam indication, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Printer Tasks

Clearing HCI Jam 2

If the Control Panel shows an HCI jam 2, there may be paper jammed between the HCI and the printer.

Squeeze the HCI top handle to release the HCI from the printer and then pull it away as shown in Figure 3-47.
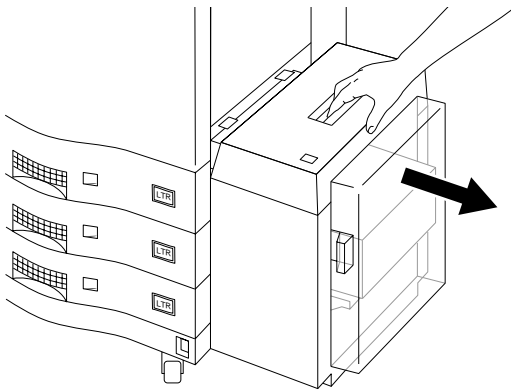

Figure 3-47   Releasing the HCI from the printer

5.   If there is paper hanging out of the printer or the HCI, remove it, as shown in Figure 3-48:
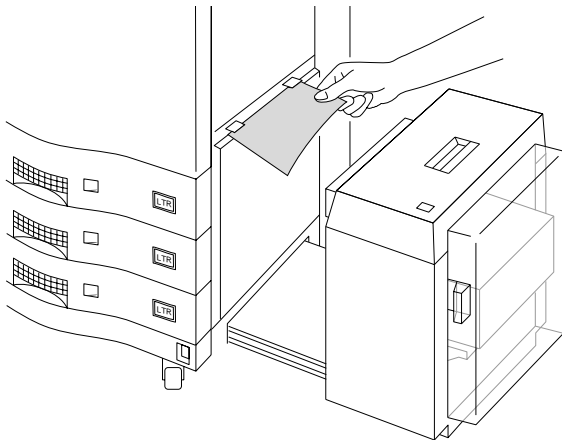

Figure 3-48   Removing paper between the HCI and the printer

6. Push the HCI towards the printer until it latches and check the Control Panel.

7. Press Clear. If there is no paper jam indication, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Clearing Paper Path Jams

Once the paper has cleared the feed mechanisms, which carry the paper up to the drum unit, there are places where jams can occur between the drum unit and the area just before the ejection unit. These areas are: at the fuser, in the duplex path, and the print unit path around the reversing unit. This is indicated on the Control Panel by the blinking paper path shown in Figure 3-49.
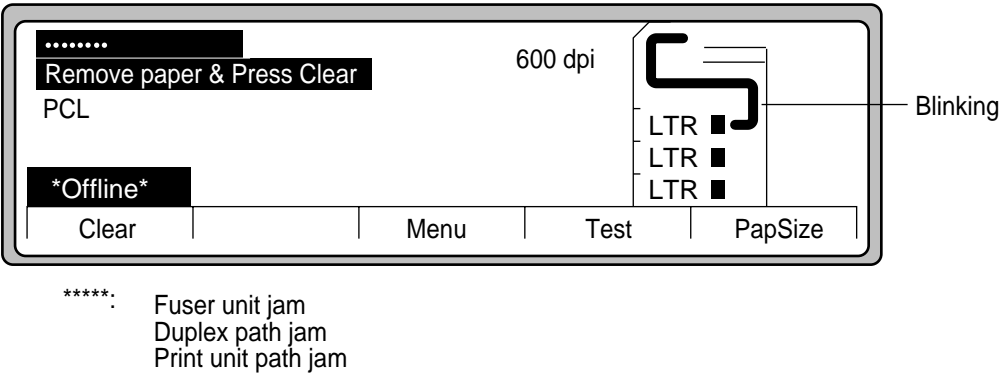


```
········
Remove paper & Press Clear          600 dpi
PCL
                                    LTR ■        — Blinking
                                    LTR ■
*Offline*                           LTR ■
   Clear          |    Menu    |    Test    |  PapSize
```

*****:   Fuser unit jam
         Duplex path jam
         Print unit path jam

Figure 3-49   Paper path jams indication

Printer Tasks

Clearing a Fuser Unit Jam

The fuser unit jam is located after the drum.

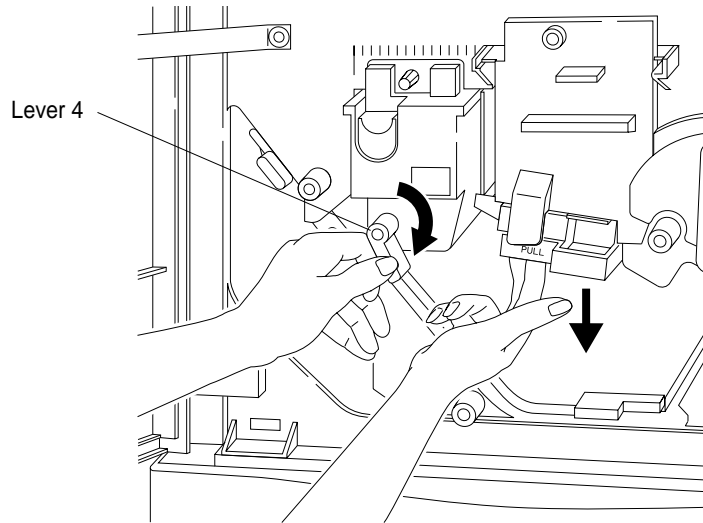1. Open the front door and lower the Transfer Assembly, as shown in Figure 3-50.

Figure 3-50   Lowering Transfer Assembly

2. Turn Lever 4 fully clockwise (straight down) until stopped to relieve tension on the paper, as shown in Figure 3-50.

3. Look for a sheet or sheets of jammed paper on the right side of the fuser unit. While pressing the decurler lever with your left hand, reach in and remove any jammed paper with your right hand, as shown in Figure 3-51.
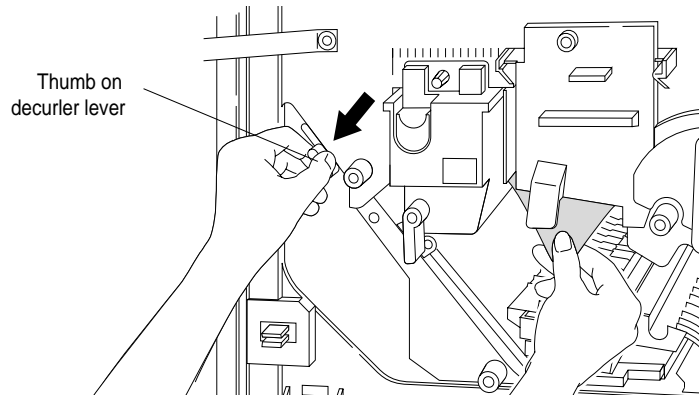
Figure 3-51   Removing Fuser Unit paper jam using Decurler Lever

4. After you have removed the paper, raise the Transfer Guide, return Lever 4 to the horizontal (closed) position (as shown in Figure 3-52), and close the door.
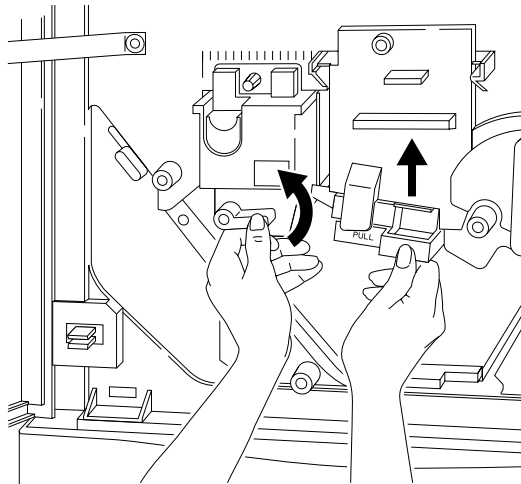

Figure 3-52   Closing Lever 4 and securing the Transfer Assembly

5. If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Printer Tasks

Clearing a Duplex Unit Jam

The duplex unit jam is indicated on the Control Panel as shown in Figure 3-53.
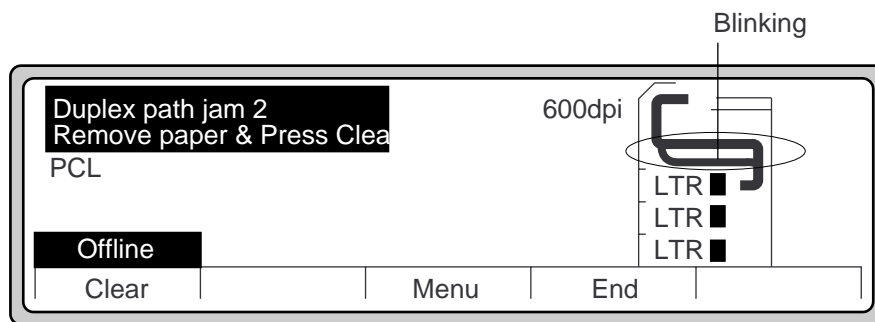

Figure 3-53   Duplex Unit Paper Jam

1. Open the door and locate lever 6 as shown in Figure 3-54.
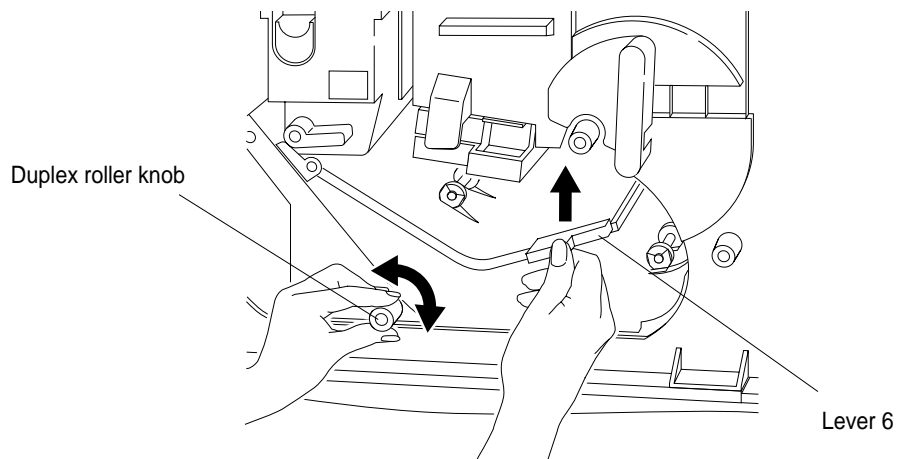2. Lift lever 6 and turn the duplex roller knob to move any paper into view.

Figure 3-54   Freeing Duplex Jam

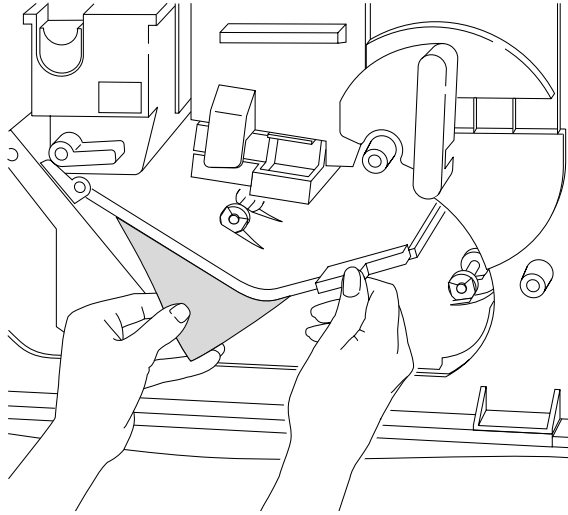3.   Remove paper as shown in Figure 3-55 and close the door.

Figure 3-55   Removing paper jam from duplex path

4.   Press Clear. If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Printer Tasks

Clearing a Reversing Unit Area Jam

The reversing unit area paper path jam is located to the left of the duplex unit.

1. Open the front door and turn Lever 4 fully clockwise, shown in Figure 3-56. This removes pressure on paper leaving the fuser unit area.
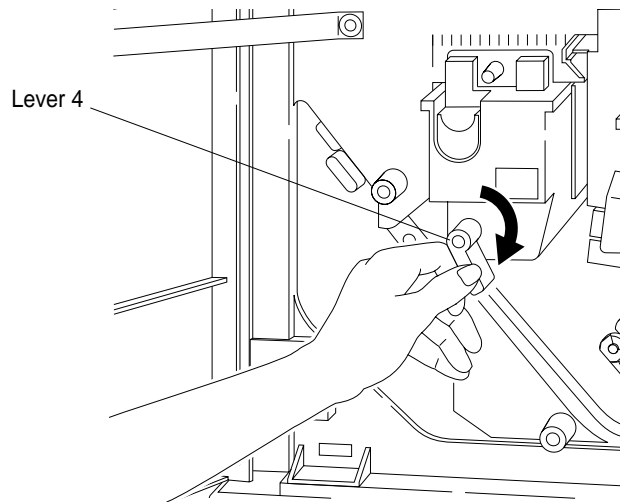
Lever 4

Figure 3-56   Opening Lever 4

2. Locate Lever 5 and push it downward and away from the fuser unit area, as shown in Figure 3-57.
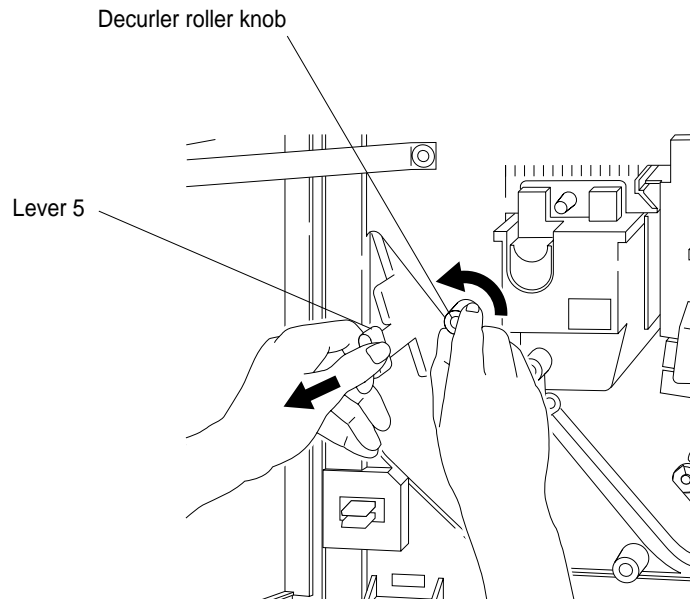
Decurler roller knob

Lever 5

Figure 3-57   Freeing paper in Reversing Unit jam

3. If paper is not visible, turn decurler roller knob counterclockwise to move any paper into view, or reach up into this area carefully.

4. Remove jammed paper, as shown in Figure 3-58.
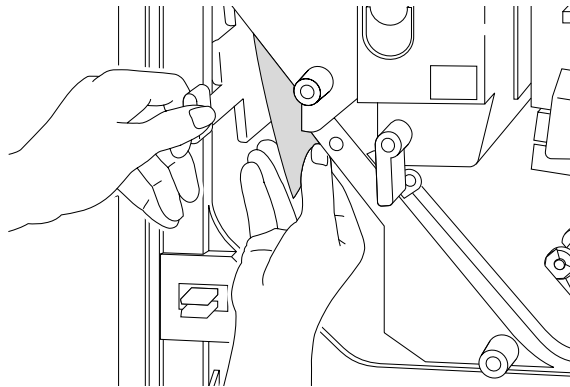
Figure 3-58   Removing paper jam from reversing area

5. Turn Lever 4 fully counterclockwise back into the closed position, as shown in Figure 3-59, and close the door.

Figure 3-59   Closing Lever 4

6. If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Clearing Paper Output Jams

Once the printed page is made, it is delivered to you outside of the machine. There are several places in the ejection paper path where jams can occur. They are in the ejection unit and the HCO.

Clearing an Ejection Unit Jam

Figure 3-60 shows the ejection unit jam indication on the Control Panel.
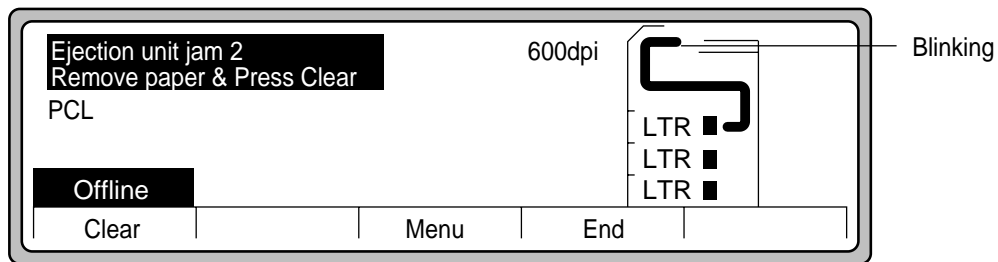
Figure 3-60 Ejection Unit jam

1. Swing open the ejection unit cover as shown in Figure 3-61.
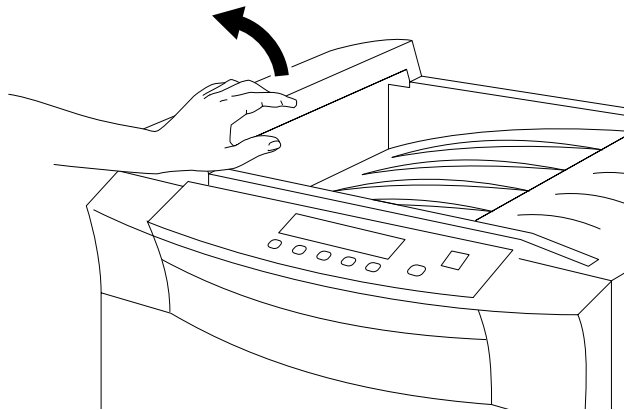
Figure 3-61 Opening the Ejection Cover

Printer Tasks

2. Remove any jammed paper in the ejection unit cover area (Figure 3-62) and close the cover.
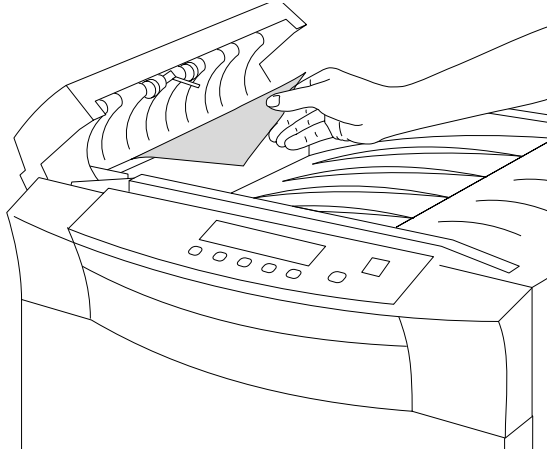
Figure 3-62   Removing jammed paper from Ejection Cover area
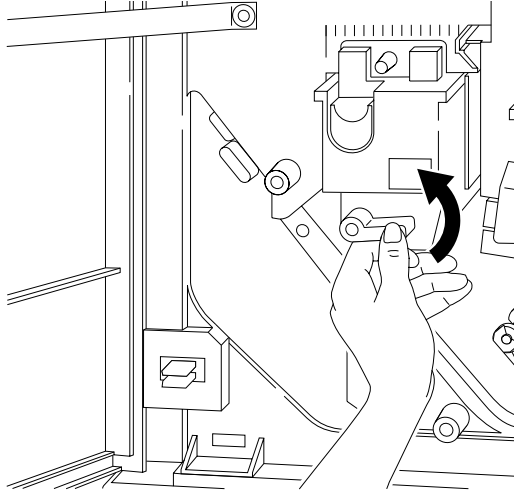
3. If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Clearing an HCO Jam

Jams can occur at the input to the HCO. Figure 3-63 shows the HCO jam error indication on the Control Panel.

HCO jam 1	600dpi	Blinking
PCL		
Cen	LTR ■	
	LTR ■	
Offline	LTR ■	
Offline	Menu	End
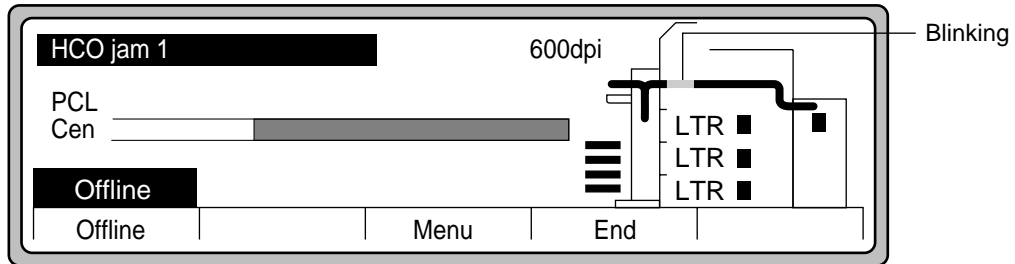
Figure 3-63   HCO paper jam indication

1. Open the front door and remove any jammed paper in the reversing area, as shown in Figure 3-58.
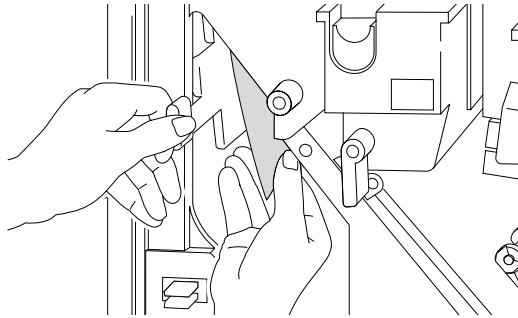
Figure 3-64   Removing paper jam from reversing area

Printer Tasks

Clearing Paper Output Jams

2.   Open the HCO door. Locate and turn knob 1 counterclockwise to move paper from the input area to the lower section as shown in Figure 3-65.
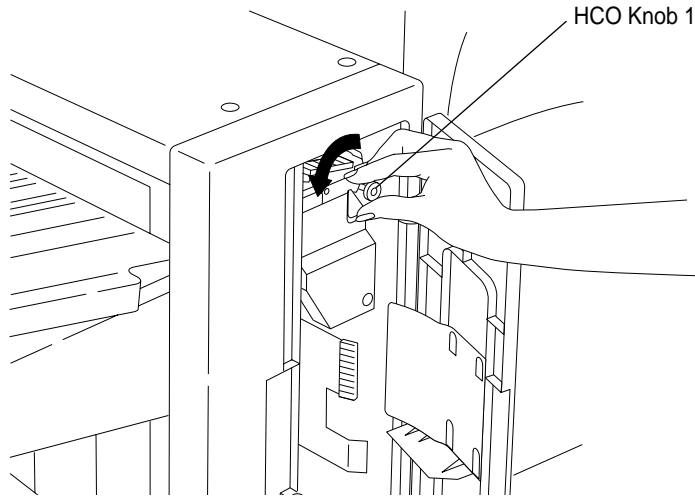
HCO Knob 1

Figure 3-65   HCO Knob 1 Paper Input Roller

3.   Pull lever 2 back (Figure 3-66) and remove any paper.

HCO
Lever 2
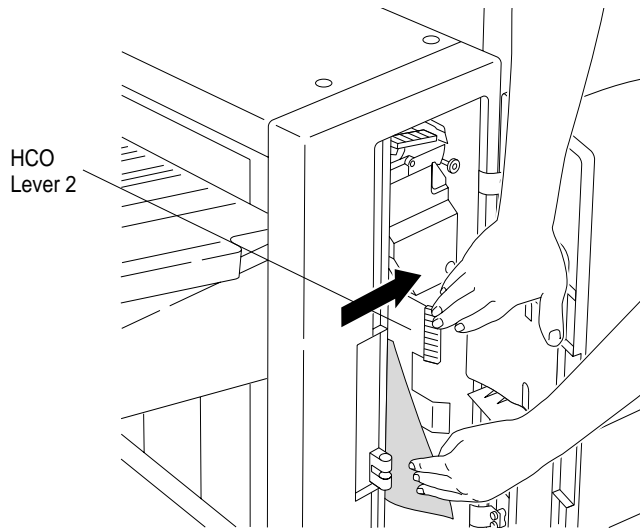
Figure 3-66   Clearing HCO lower section paper jam using Lever 2

3-46 Printer Tasks

4. If jammed paper is not visible, lift lever 1 to see if there is paper jammed there. Rotate knob 1 counterclockwise to move any paper into view. Remove any paper found as shown in Figure 3-67.

HCO Lever 1
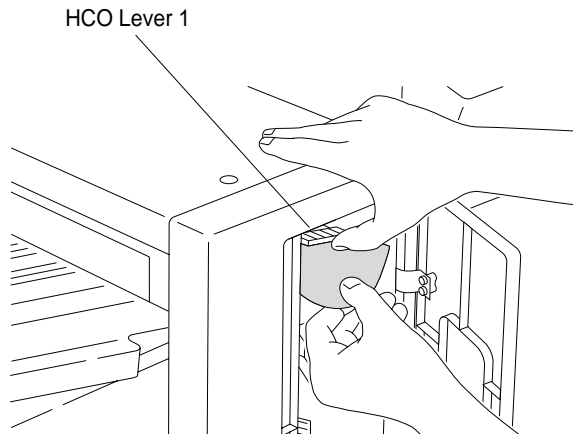
Figure 3-67   Clearing HCO upper section paper jam using Lever 1

5. Close the HCO door.
6. If jammed paper is not visible, there may be paper jammed between the HCO and the printer.

   You'll need to separate the HCO from the printer and check for jams. See the following section for more information.

Separating the HCO and Printer

To separate the HCO from the printer:

1. The printer physically connects to the HCO with a connecting pin, which fits into the corresponding positioning hole on the HCO. See Figure 3-68.

Connecting
Pin

Positioning
Hole
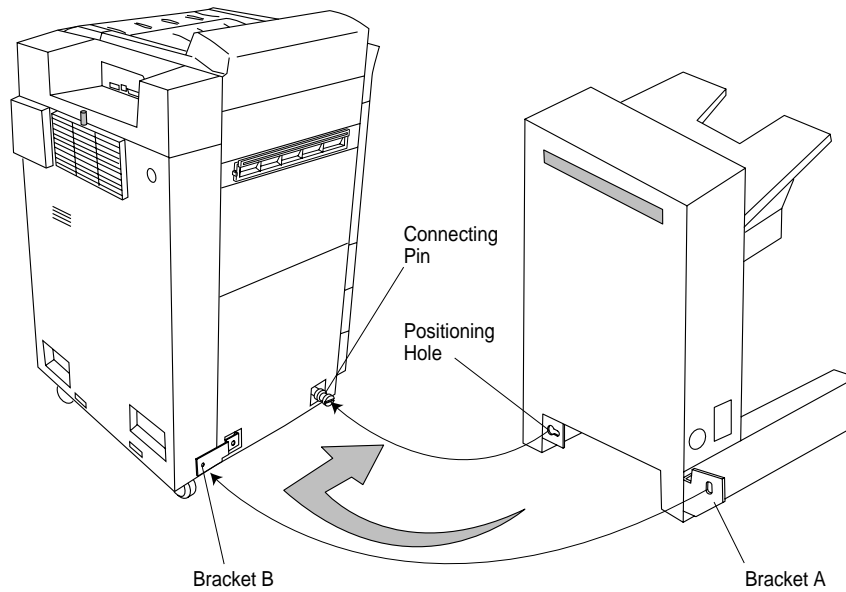
Bracket B

Bracket A

Figure 3-68   Separating HCO and printer

2. Figure 3-69 shows detailed look at the connecting pin and the positioning hole.

Printer

Push HCO
left to disengage

Pin

Unscrew Bracket A

Printer

HCO

Pin

Pull HCO away from printer
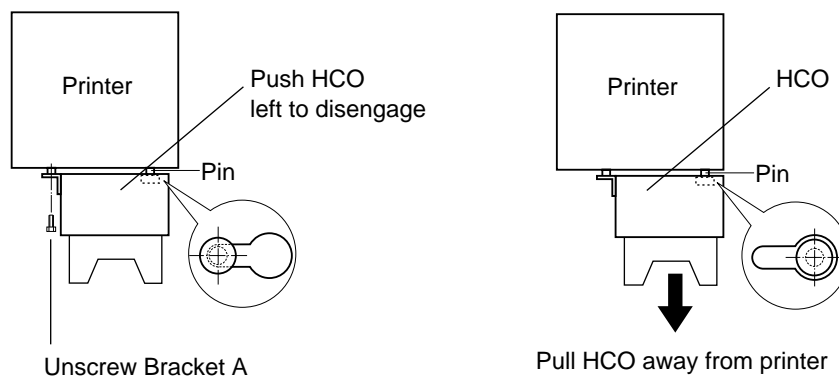
Figure 3-69   Printer connecting pin and HCO positioning hole configuration

3. Unscrew bracket A, which connects the HCO to the printer.

4. Push the HCO to the left to disengage the connecting pin from the positioning hole.

5. Pull the HCO away from the printer. It is still connected by a cable, but you should only need to move it far enough to see if there is paper jammed in the interval between the machines. If you find paper there, remove it.

6. Push the HCO and the printer together and reseat the connecting pin in the positioning hole.

7. Replace bracket A.

   If no other paper jam indications appear on the Control Panel, you are ready to resume printing. If the Control Panel still shows a jam, search the area again, or the area indicated on the Control Panel.

Handling Error Messages and Troubleshooting

An error message can be caused by mechanical problems, such as jams, or by incorrect settings, such as specifying the wrong paper size from the wrong paper tray. These are typical printer problems than can be easily cleared by the user.

Printer errors that are caused by mechanical or electrical problems are also reported by specific error codes. These problems require a service call to your service representative.

An error message is always accompanied by an action message, as shown in Figure 3-70.
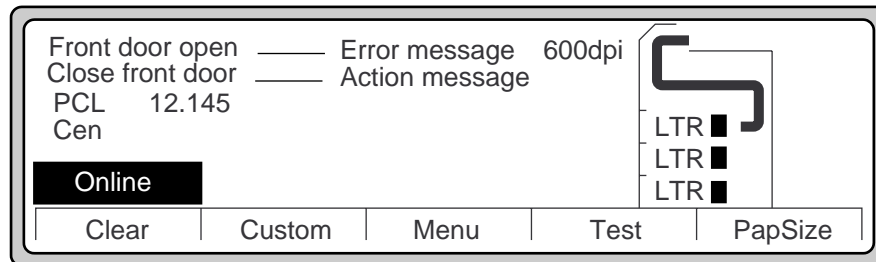
Figure 3-70   Error reporting

Error Reporting/Action Response

Refer to "Error Messages" on page A-7, for how to interpret error messages.

In the unlikely event that the printer has a major error, follow these steps:

1. The printer may self-diagnose the problem and possibly display the message as shown in Figure 3-71.
2. Write down the error code and message that appears on the Control Panel.
3. Refer to "Call Engineer Error Messages and Codes" on page A-8 to determine the meaning of the error code.
4. If the error code calls attention to a specific physical component or location on the printer, check the area specified and correct the problem.
5. If you cannot resolve the problem, call your service representative. Be prepared to give the service representative the error code and any messages that appear on the Control Panel to assist in troubleshooting.
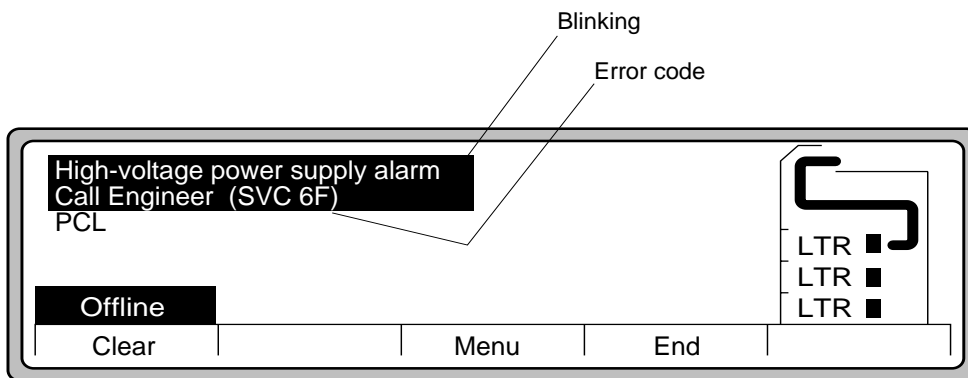
Figure 3-71   Call Engineer (Service Representative)

4

Ordering and Replacing Consumables

Introduction

This chapter provides user maintenance procedures to maintain the printer's consumables.

Overview of Consumable Supplies

You can replace all of the consumable supplies. This chapter presents step-by-step instructions for removal and replacement of these supplies and explains how to set the printer to produce lighter or darker prints.

- Each time you replace a consumable, the action is automatically recorded in the printer's online maintenance log.

⚠ **Caution**   Damage to the photoconductor can cause excessively light or dark printing or missing text.

⚠ **Caution**   Hewlett-Packard recommends the use of Hewlett-Packard labelled consumable supplies. Hewlett-Packard is not responsible for any failures or print quality issues arising from the use of other than Hewlett-Packard supplies in the cut sheet printer. Such failures are not covered under warranty or under the Hewlett-Packard service agreement.

Consumables

Ordering D640 Printer Consumables

You can order consumables directly from Hewlett-Packard by calling 1-800-538-8787 in the United States and Canada. Customers outside the United States and Canada should contact their local Hewlett-Packard sales office.

Please plan for a two to five day delivery in the United States, possibly longer outside the United States. If your printer was purchased from a Hewlett-Packard reseller, you may be able to purchase consumables directly from them.

Table 4-1 lists the D640 printer consumables, ordering numbers, kit content descriptions and quantities, along with the length of time you can expect them to last under optimum operating conditions.

Use the replacement cycle estimates in Table 4-1 to plan your initial consumable purchases. Because yields may vary widely from the estimates, you should track your actual usage to establish proper replacement schedules for each printer installation.

Actual yields depend upon:

- Media (paper type, weight, chemical composition, perforations, paper dust, and quality).
- Media storage factors such as care and handling, room temperature, and humidity.
- Exposure to light (photoconductor drum).
- Frequency of cleaning the printer.
- Average print job size, daily print volume, and patterns of printing.
- Ambient environmental conditions, such as temperature, humidity, and static electricity.
- Power-on hours.

"Managing Consumables" on page 6-6 describes some of the considerations in using and replacing consumables.

Table 4-1   Consumables, product part numbers, and replacement cycles

Item	Product Number	Contents	Qty	Replacement Cycle (Estimated)	Shelf Life
Toner Kit	C5626A	Toner bottles	8 each	Up to 180,000 page sides	18 months
		Collector bottles	8 each	*Note: Yield based on 4% toner coverage*	
		Cleaning rollers	4 each		
Developer Kit	C5632A	Developer bottles	2 each	Up to 250,000 page sides	18 months
		Ozone filter	1 each		
Drum Kit	C5629A	Photoconductor drum	1 each	Up to 195,000 page sides	18 months
		Transfer unit	1 each		
		Cleaning wipes	1 pkg		
Fuser Kit	C5627A	Fuser, 120-127 VAC	1 each	Up to 300,000 page sides	18 months
Fuser Kit	C5628A	Fuser, 200-240 VAC	1 each	Up to 300,000 page sides	
Printer Pick Roller Kit	C5633A	Printer pick rollers	1 set	Up to 500,000 pages	Inf.
HCI Pick Roller Kit	C5636A	HCI pick rollers	1 set	Up to 500,000 pages	
Note: Replacement cycles based on letter or A4 sized media. Larger sized media require more frequent replacement.					

Note   A new printer will report toner low and need to be refilled the first time after printing about 6,000 images. This is normal and is due to the toner hopper being completely empty in a new printer.

The estimated yields listed are not a warranty or guarantee of minimum life and are provided to assist in initial supplies planning. Yields may vary widely based on applications and operating conditions.

Yield estimate are based on, but not limited to, ideal environmental and operating conditions, print jobs averaging 4% toner coverage per page, and an average job of 25 pages.

Consumables

Replacing Toner

The toner comes in a kit that contains bottles of toner, empty toner collector bottles, and fuser cleaning rollers. The toner collector bottle is replaced with every bottle of toner. The fuser cleaning roller is replaced after every two bottles of toner.

Note   Replace the cleaning roller every other toner replacement.

Caution   Only add toner when the printer displays a toner low or toner empty message. Never try to add toner before the printer requires it. Never add more than one bottle of toner. Overfilling causes toner spills.

When the toner starts to get low, the Control Panel displays:

> Toner Low
> Add New Toner

A Toner Low condition does not stop the printer. Toner can be added between jobs or during a job by pressing Offline:

1. Press Offline.
2. Open the upper right cover (Figure 4-1) to access the toner hopper and toner collector bottle.
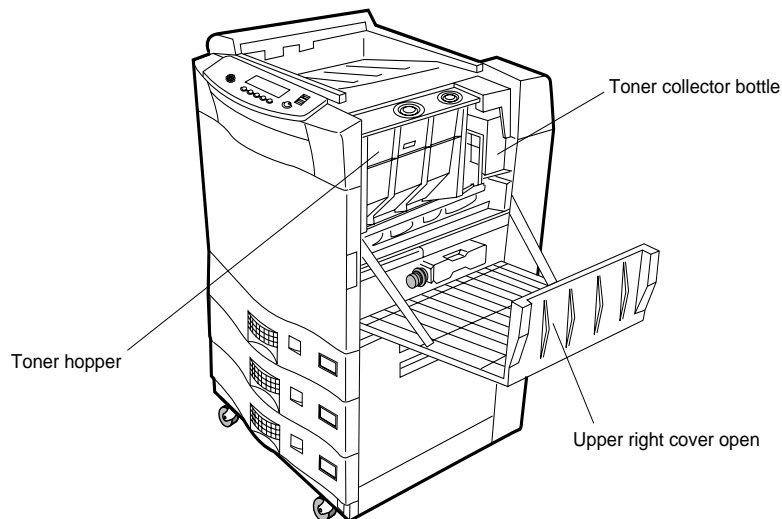
Figure 4-1   Opening Upper Right Cover

When the printer is in a toner low or toner empty condition, opening the upper right cover displays the following text on the Control Panel:

Toner Replacement
Add new toner
and replace toner collector
then close right cover

3. Locate the toner kit.
4. Remove a toner bottle.
5. Open the toner fill flap (front flap), as shown in Figure 4-2.
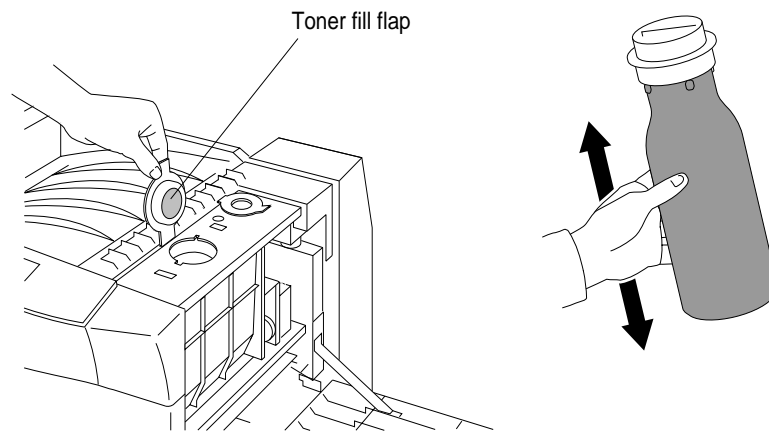
Figure 4-2   Opening the Toner Fill Flap and shaking the Toner Bottle

6. Check the top of the toner bottle to make sure it is closed. Shake the contents of the toner bottle to loosen any toner that has settled and packed during shipment.
7. Line up the guide pins on the bottle with the guide pin openings on the toner fill opening. Insert and turn the toner bottle clockwise 180° to start filling, as shown in Figure 4-3.

Consumables
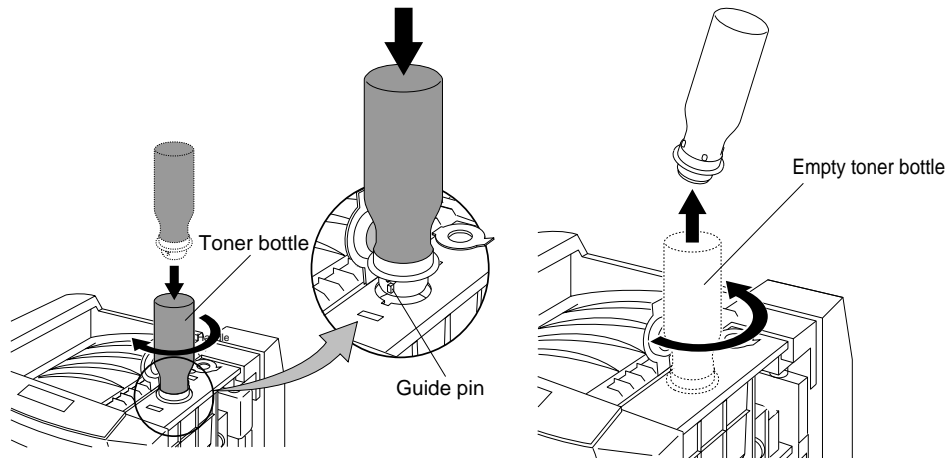
Figure 4-3   Filling the toner and removing the Toner Bottle

Note   It will take about 30 seconds for the toner to empty into the toner hopper. Because the toner bottle is translucent, you should be able to see the toner empty out of the bottle.

8.   When empty, turn the toner bottle counterclockwise 180° and remove, as shown in Figure 4-3.

9.   Close the toner fill flap, as shown in Figure 4-4.
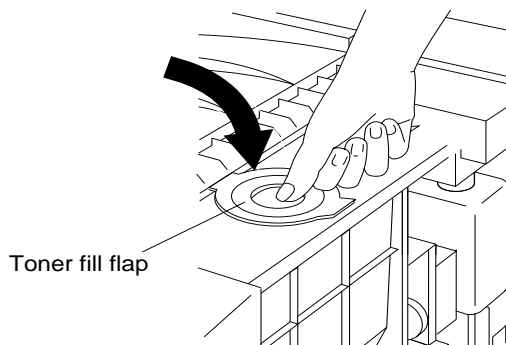
Figure 4-4   Closing the Toner Fill Flap

10. Discard the toner bottle. The toner bottle is made of recyclable materials. Dispose of it according to local regulations.

Replacing the Toner Collector Bottle

If you have toner recycling turned on, you can skip this step. For information about toner recycling, refer to "Managing Consumables" on page 6-6.

When you replace the toner, remove the old toner collector bottle and replace it with a new, empty one. Refer to Figure 4-5 for an illustration of the toner collector bottle location.
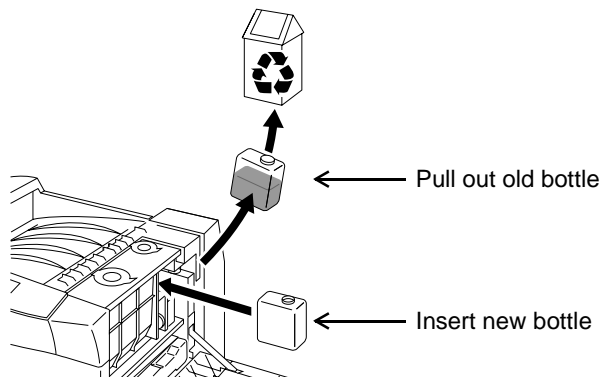
Figure 4-5   Toner Collector Bottle Replacement

Dispose of the old toner collector bottle in accordance with local regulations. Close the upper right cover.

Replacing the Cleaning Roller (When Indicated on Control Panel)

WARNING!   Handle the old cleaning roller carefully, as it may be hot.

Replace the cleaning roller during *every other* toner replacement, as directed on the Control Panel.

1. Open the front door.
2. Pull out the old cleaning roller, as shown in Figure 4-6.

Consumables
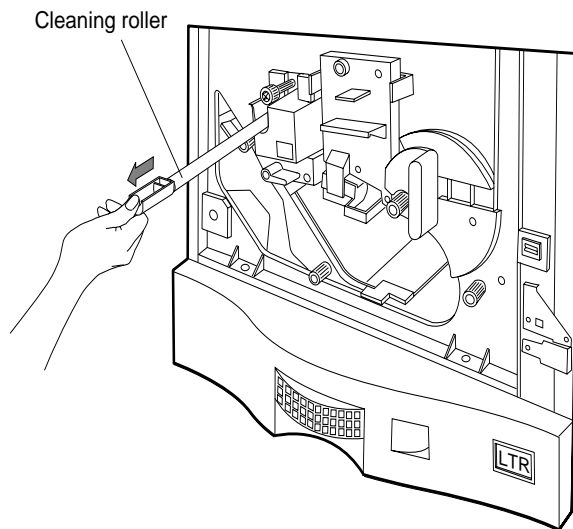
Cleaning roller

Figure 4-6   Removing the Cleaning Roller

3. Insert the new cleaning roller until it clicks into place, as shown in Figure 4-7.
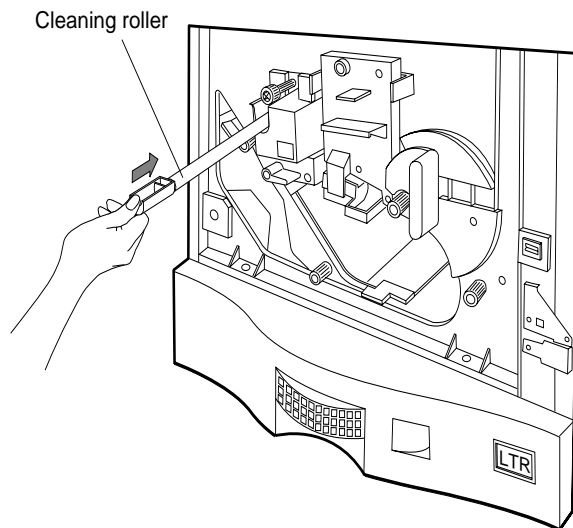
Cleaning roller

Figure 4-7   Inserting the Cleaning Roller

4. Close the front door.
5. Press Done to return the printer Online.

Replacing Developer

Change the developer when it has either reached end-of-life, or diagnostic procedures have identified it as a source of problems.

When the developer has reached end-of-life, the Control Panel will display:

> Developer at end of life
> replace developer

The printer does not stop, but it continues to display the message until you replace the developer.

Note   To avoid possible damage, the printer will stop printing about 40,000 pages after the "Developer at end life" message first appears.

Replace the ozone filter during *every other* developer replacement.

Follow these steps for the developer replacement procedure:

1. Discharge old developer.
2. Add new developer. ("Adding New Developer" on page 4-12).
3. Replace the ozone filter ("Replacing the Ozone Filter" on page 4-17).

Discharging Developer

1. Press Menu on the Main Screen. Figure 4-8 is displayed.

	Menu	Printing			
		Configuration			
		PCL			
		Comms			
		Maintenance			
Online	▲	▼	▶	◀	
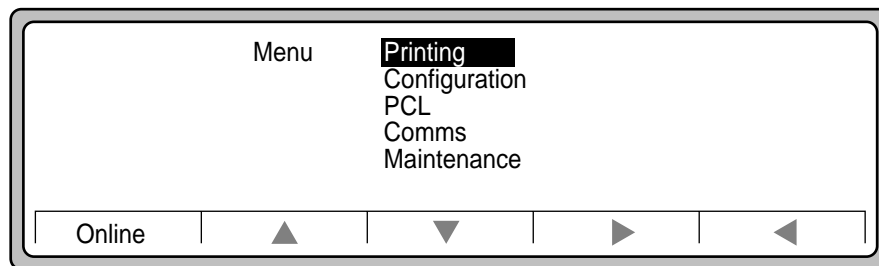
Figure 4-8   Menu

Replacing Developer

2.   Use ▼ to highlight Maintenance, as shown in Figure 4-9.

Menu	Printing
	Configuration
	PCL
	Comms
	Maintenance

Online   ▲   ▼   ▶   ◀
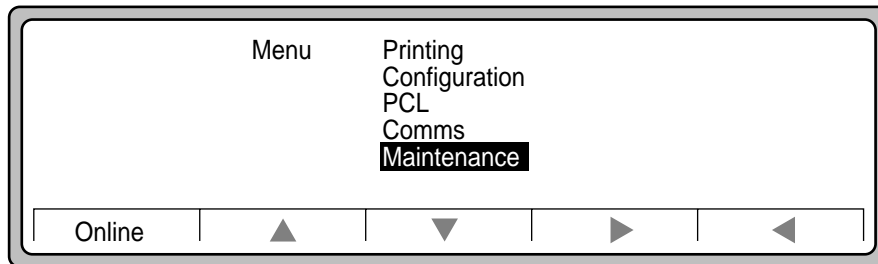
Figure 4-9   Maintenance

3.   Use ▶ to display Maintenance selections as shown in Figure 4-10.

Maintenance	replace
	alignment
	density = 10
	testpages = 30
	monitor = OFF
	date-time

Online   ▲   ▼   ▶   ◀
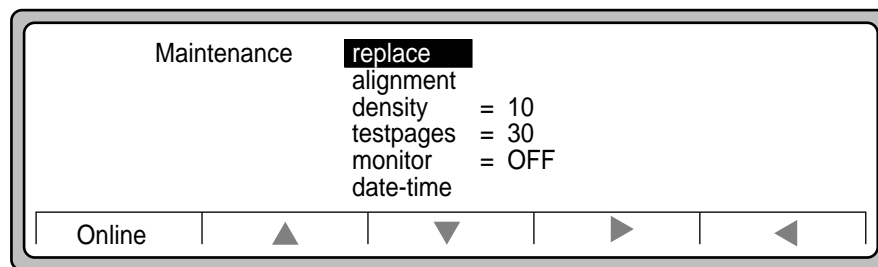
Figure 4-10   Maintenance selections

4.   Use ▶ to display replace selections, as shown in Figure 4-11. Developer is shown selected.

Maintenance.replace	DEVELOPER
	DRUM UNIT
	FUSER UNIT
	TRAY1ROLLERS
	TRAY2ROLLERS
	TRAY3ROLLERS

Online   ▲   ▼   Select   ◀
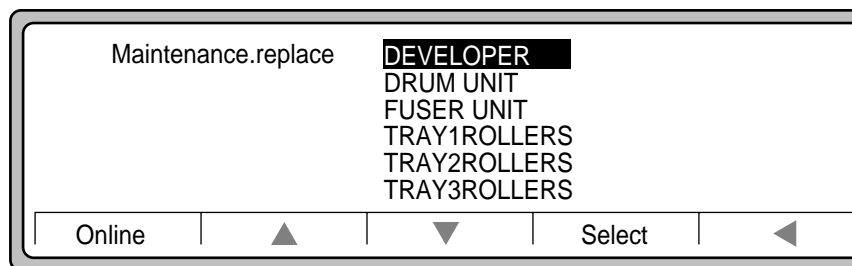
Figure 4-11   Replace selections

4-10 Ordering and Replacing Consumables

5. Press Select to display Developer instructions, as shown in Figure 4-12.

```
Developer Replacement
Prepare new developer
and press Start
to discharge old developer                    LTR ■
                                               LTR ■
                                               LTR ■
                              Start                    Exit
```
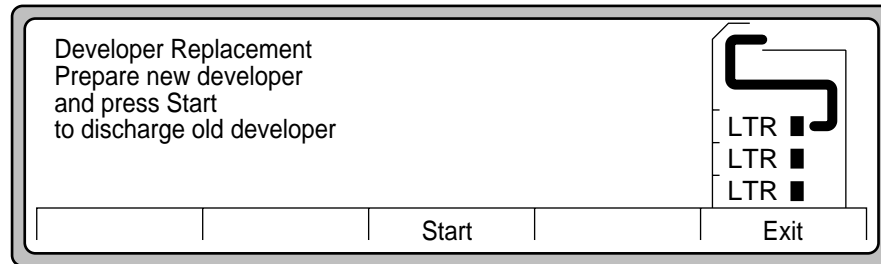
Figure 4-12   Discharge Developer

6. Press Start, as shown in Figure 4-12.
7. The old developer is cycled into the empty developer bottle. The process takes about 45 seconds. Do not open any covers or cycle power during this period. Follow the instructions on the Control Panel.

Blinking

```
Developer discharge
Developer discharging
 Please Wait
```
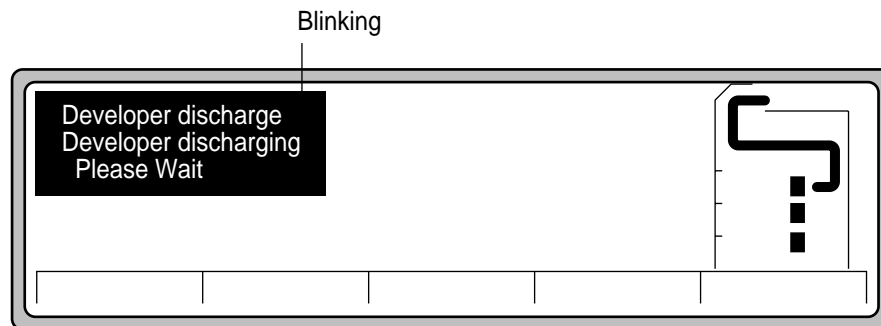
Figure 4-13   Developer discharging

Ordering and Replacing Consumables 4-11

8. After 45 seconds, you see the display shown in Figure 4-14.

Blinking

Developer discharge completed
Prepare new developer bottle
Open upper right cover
 Press Done
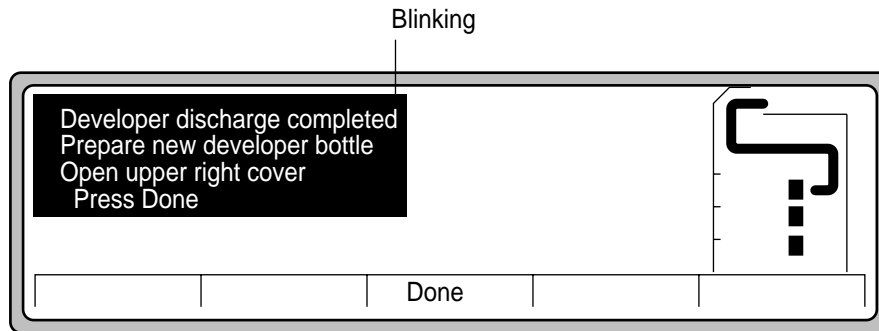
Done

Figure 4-14   Developer discharge complete

9. Press Done.

Adding New Developer

1. Open the upper right cover and locate the developer bottle as shown in Figure 4-15.

Developer collector bottle

Upper right cover
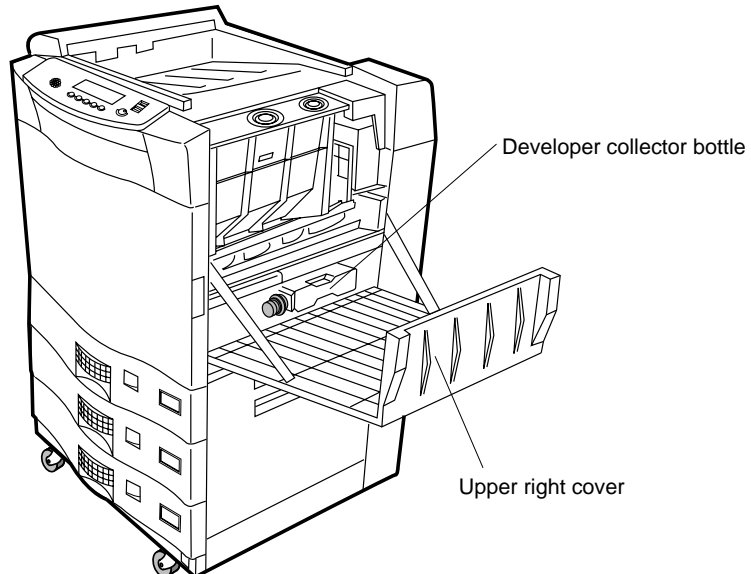
Figure 4-15   Developer and Developer Collector Bottle

2.   Remove the developer collector bottle, as shown in Figure 4-16.
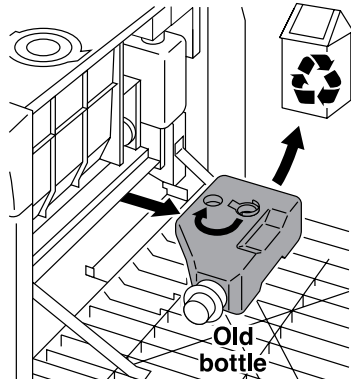
Figure 4-16   Removing Developer Collector Bottle

3.   Move the bottle cap from the storage position onto the collection hole to close the bottle, as shown in Figure 4-16.

4.   Discard the developer collector bottle. The developer collector bottle is made of recyclable materials; dispose of it in accordance with local regulations.

5.   The following text appears on the Control Panel:

     Developer injection
     Open rear flap
     Insert New Developer bottle
     Press Done when bottle empty

6.   Locate a new bottle of developer.

Consumables

7. Open the developer fill flap, as shown in Figure 4-17.

Developer fill flap
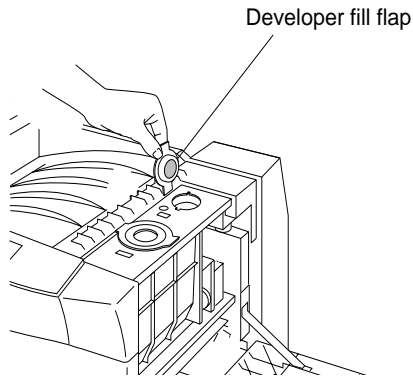
Figure 4-17   Opening the Developer Fill Flap

⚠ **Caution**   Never reinstall used developer. Doing so may result in poor print quality.

8. Line up the guide pins on the new developer bottle with the guide pin openings on the developer fill. Insert and turn the developer bottle clockwise 180° to start filling, as shown in Figure 4-18.

Developer bottle

Developer bottle

Developer bottle

Guide pin

Guide pin slot
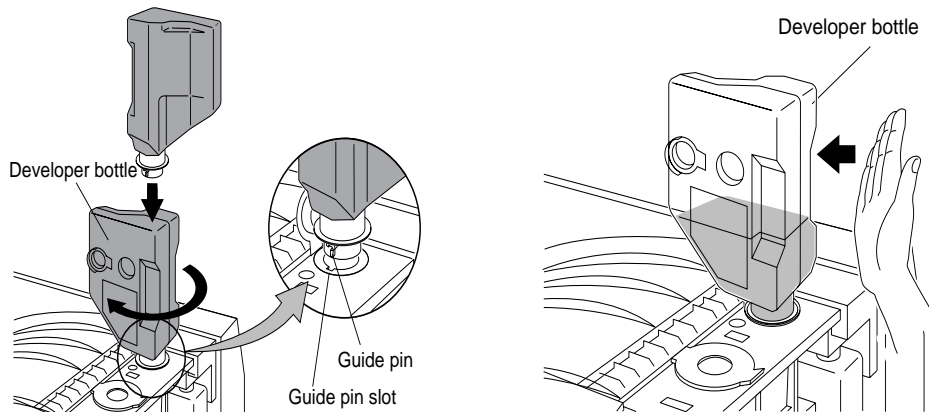
Figure 4-18   Filling the Developer and tapping the Developer Bottle

9.   Gently tap the developer bottle to dislodge any remaining developer, as shown in Figure 4-18.

10. Turn the developer bottle counterclockwise 180° and remove, as shown in Figure 4-19.

Empty developer bottle
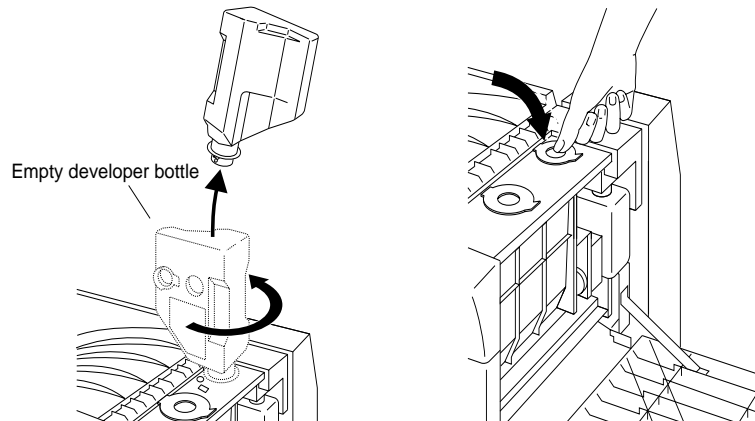
Figure 4-19   Removing the Developer Bottle and closing the Fill Flap

11. Close the developer fill flap, as shown in Figure 4-19.

12. Press Done. The Control Panel displays:

Developer injection complete
Remove and Cap Old Bottle
Install Empty New Bottle
Close Cover and Press Done

Consumables

Ordering and Replacing Consumables   4-15

Installing Developer Collector Bottle

1. Remove small cap on the side of the developer collector bottle.
2. Turn cap around and place in the storage location, as shown in Figure 4-20.

Empty bottle
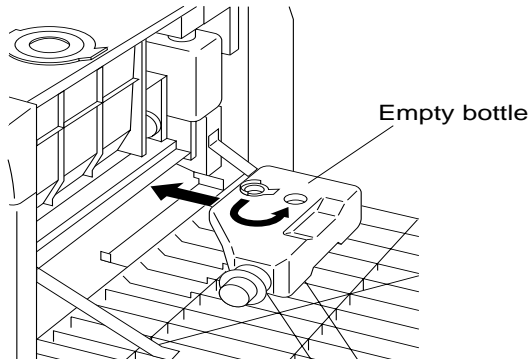
Figure 4-20   Installing Developer Purge Bottle

3. Insert developer collector bottle into storage position.

Note   The developer collector bottle will not fit if you forget to move the small cap to its storage location.

4. Close upper-right cover.
5. Press Done on the Control panel.

Replacing the Ozone Filter

Replace the ozone filter after every other developer replacement.

1. Locate the ozone filter packaged in the Developer Kit.
2. Remove the used filter from the filter holder and install the new one, as shown in Figure 4-21.
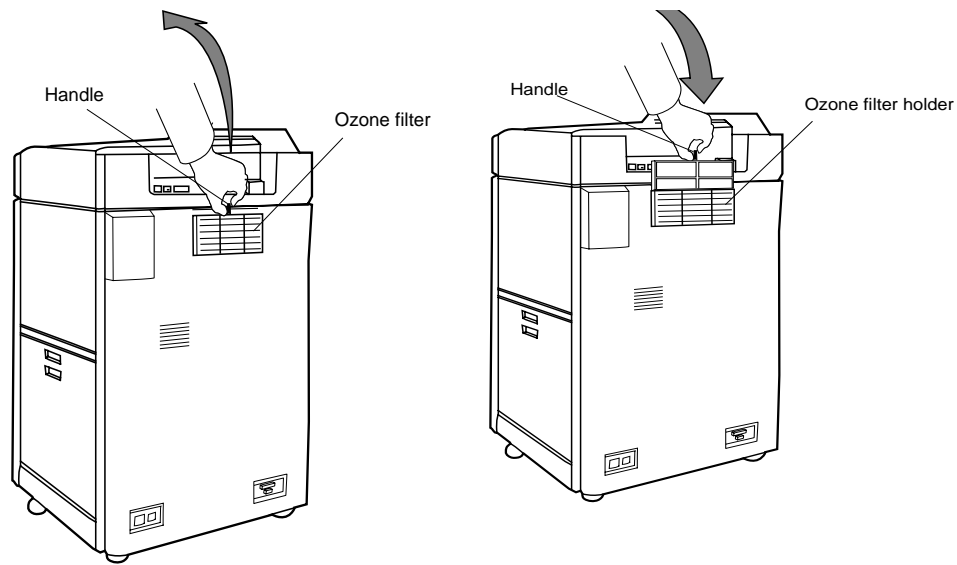
Figure 4-21   Replacing the Ozone Filter

3. Discard the used filter. The filter is not made of recyclable materials; dispose of it in accordance with local regulations.

Drum Kit - Replacing Drum and Transfer Assembly

The drum and transfer charger are always replaced together. The drum is replaced when the Control Panel indicates:

> Drum at end life
> Replace drum

> ⚠️ **Caution**   The drum surface is easily damaged. Avoid contact with the drum surface and don't expose the drum to light for extended periods of time. Scratches will appear as dark lines or marks on the printed page. A scratched drum should be replaced.

This section provides maintenance procedures for:

- Removing the old transfer assembly and installing the new transfer assembly (See "Removing the Transfer Assembly" on page 4-19).
- Removing the old drum and installing the new drum (See "Installing the Drum" on page 4-24).

Setting Up the Printer for Drum Kit Replacement

1. Press the Menu button on the Main Screen.
2. Press ▼ to highlight Maintenance.
3. Press ► to display Maintenance selections.
4. Press ► to enter the Replace submenu.
5. Press ▼ to highlight DRUM UNIT.
6. Press ► to display drum instructions as shown in Figure 4-22.
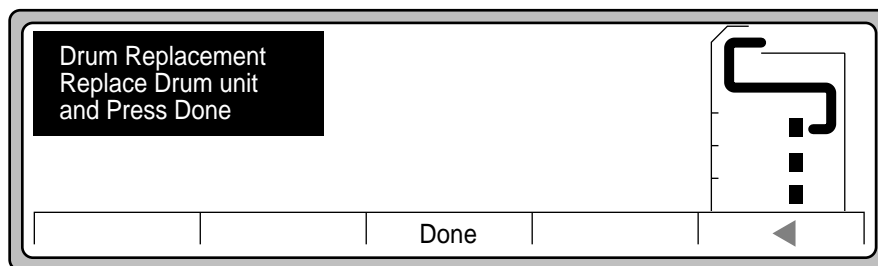
Figure 4-22   Replace Drum

Removing the Transfer Assembly

1. Open the front door, if it is not already open.
2. While pulling Handle 3, carefully lower the transfer guide as shown in Figure 4-23.

Handle 3

Transfer assembly
guide

LTR
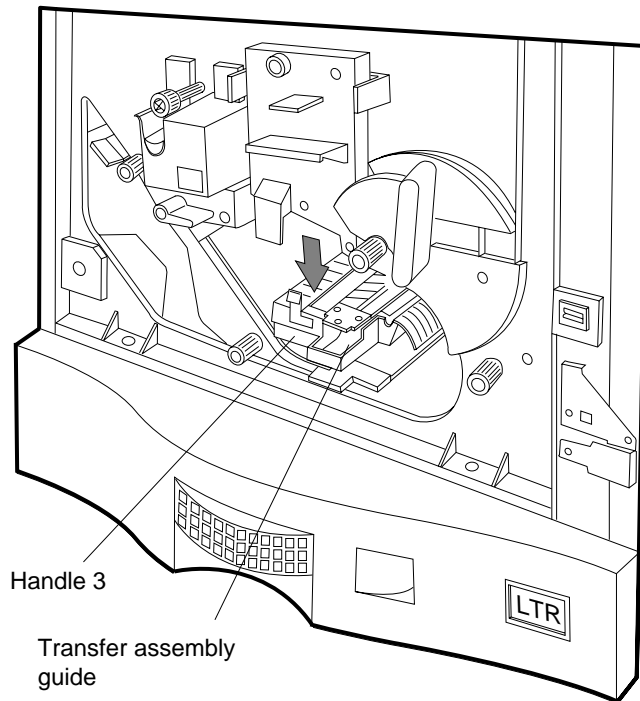
Figure 4-23   Handle 3 and Transfer Assembly Guide

3. Push in and pull up on the transfer assembly to free it from the guide assembly as shown in Figure 4-24. Lift the transfer assembly out of the guide assembly.

> ⚠ **Caution**   As you handle the transfer assembly, take care not to touch or damage the transfer wire.
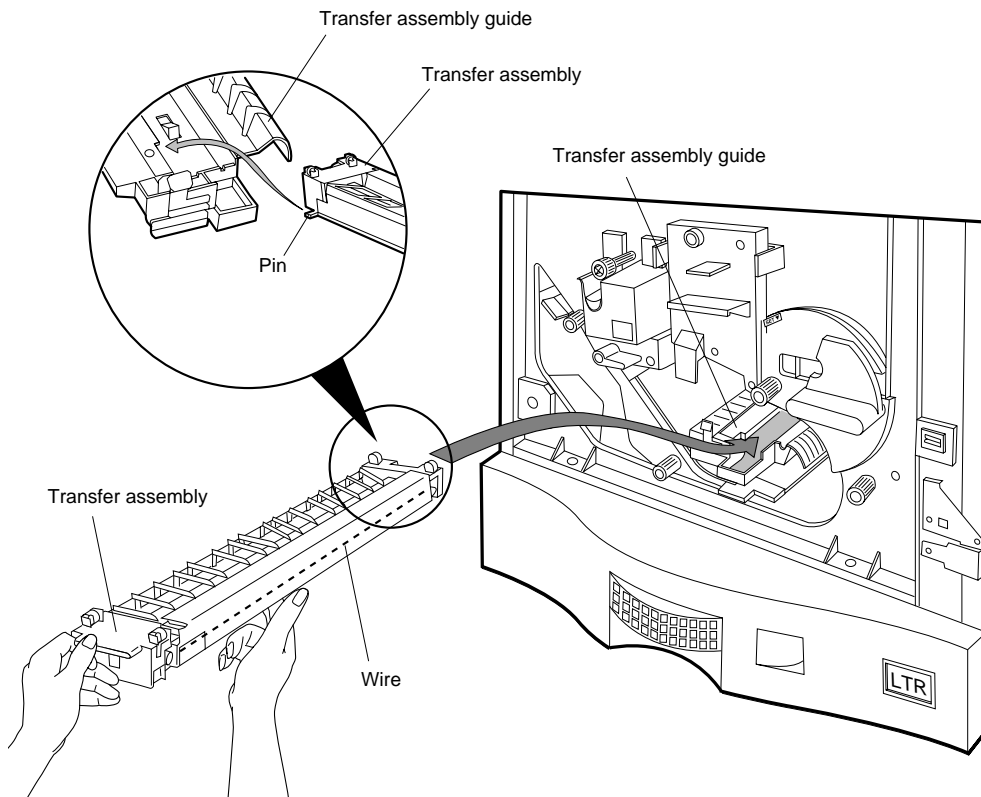
Figure 4-24   Removing the Transfer Assembly

4. Discard the transfer unit.

Removing the Drum

1. Turn drum locking knob counterclockwise two or three turns to unlock the drum, as shown in Figure 4-25.

Twist thumbscrew

Lever b1

Handle 3

LTR
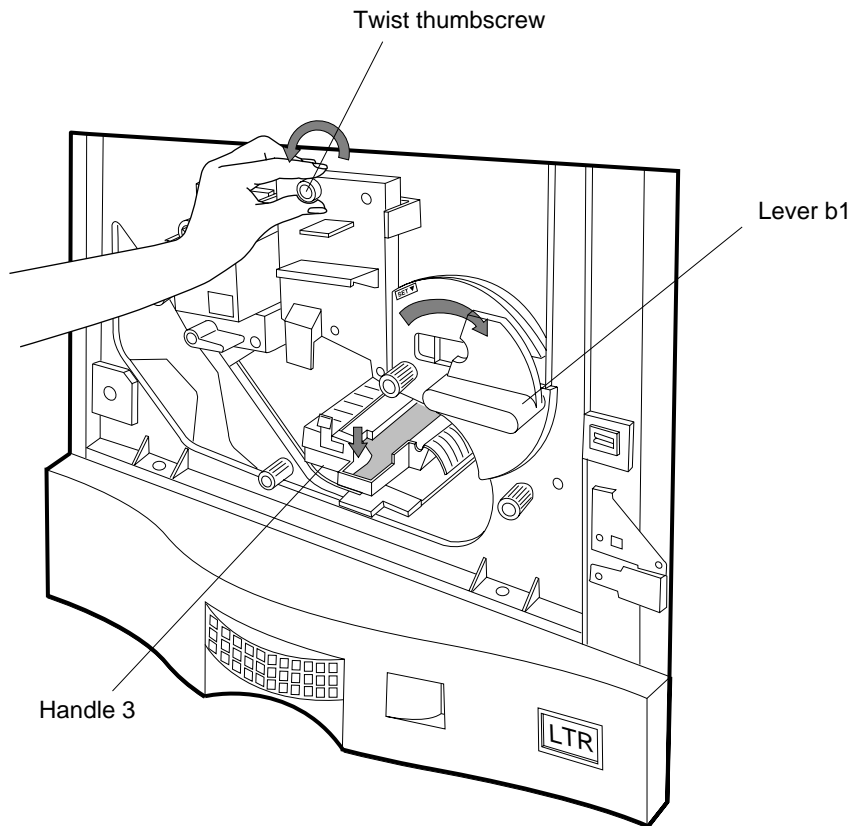
Figure 4-25   Releasing the Drum

Consumables

2. Rotate Lever b1 clockwise, as shown in Figure 4-26.
3. Use the drum handles on the top and front to pull it out, as shown in Figure 4-26.
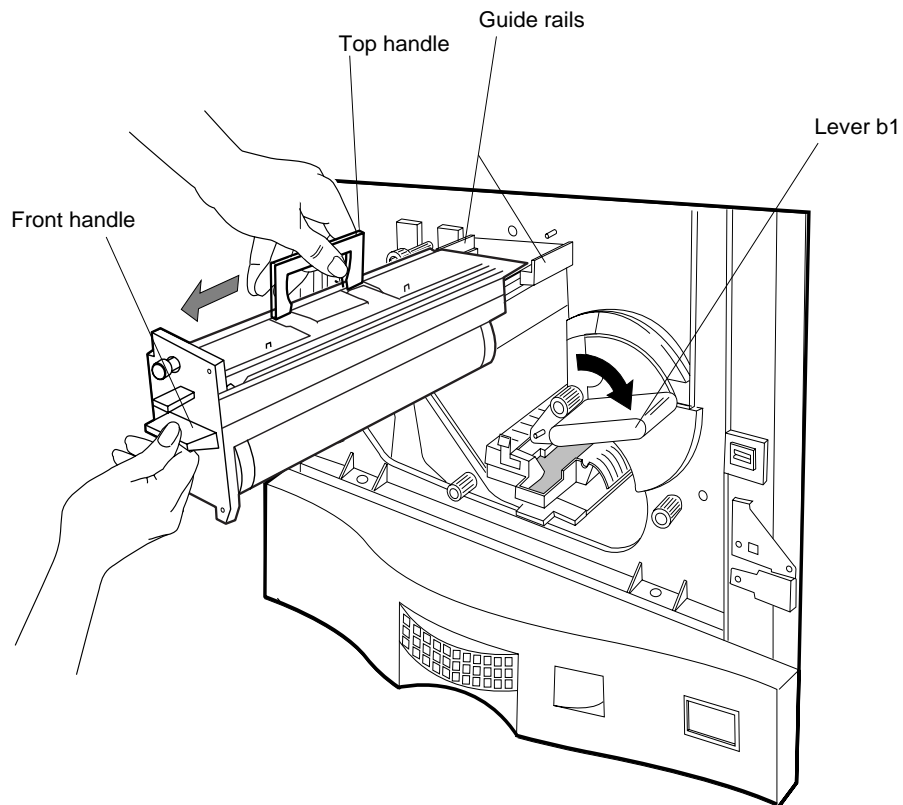
Figure 4-26   Removing the Drum

4. Discard the used drum. The drum is an aluminum cylinder coated with non-hazardous organic material. Dispose of it according to local ordinances.

Unpacking the New Drum

1. Open the vacuum sealed bag containing the drum and remove it, as shown in Figure 4-27.
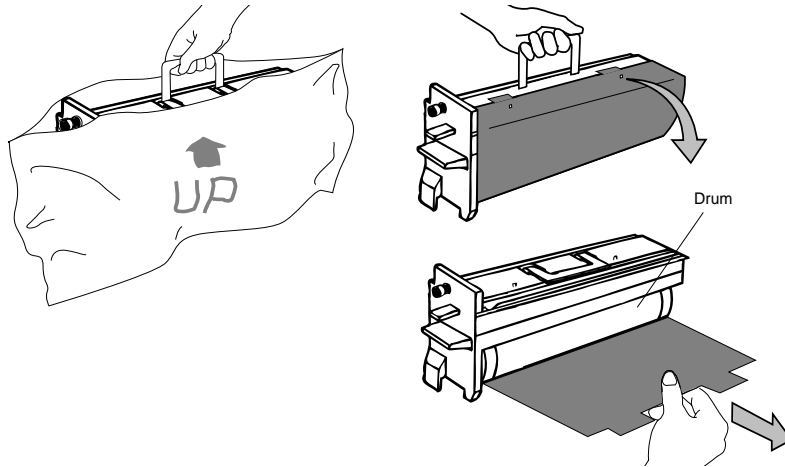
Figure 4-27   Unpacking Drum and removing the Protective Cover

2. Hold the drum by the top handle, set it on a solid surface, and carefully remove the protective cover, as shown in Figure 4-27.

⚠️ **Caution**   Do not touch the surface of the drum. Finger prints and scratches on the surface of the drum may adversely affect print quality.

Consumables

Installing the Drum

1. Make sure Lever b1 is in the OPEN position.

    Use the drum handles on the top and front to insert the drum along the guide rails until it stops, as shown in Figure 4-28. Push forward gently until the drum meets the positioning pins.
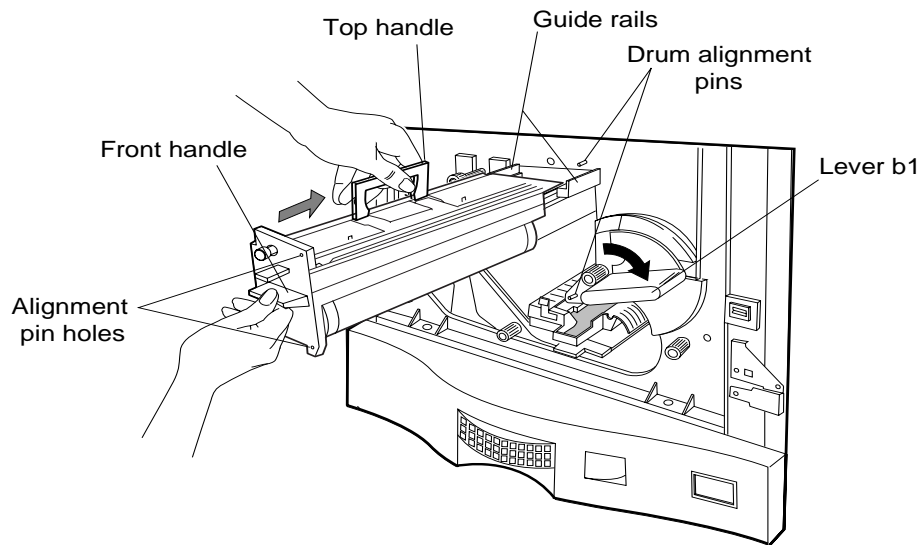
Figure 4-28   Inserting the Drum

2.   Gently push the drum onto the positioning pins (Figure 4-29).

(2) Drum Alignment Pins
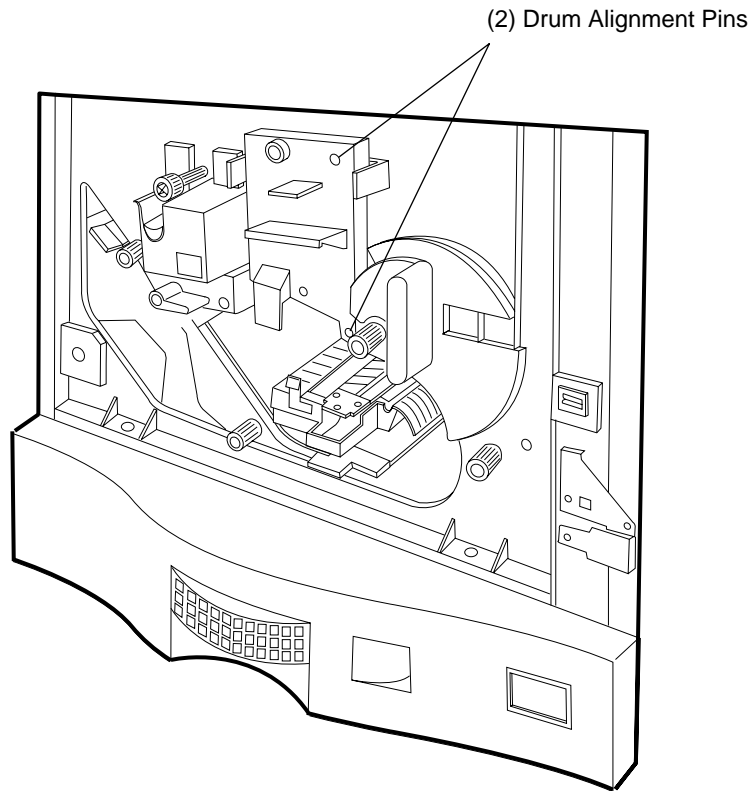
Figure 4-29   Drum Alignment Pin locations

Note   Make sure the alignment pins on the printer line up with the alignment-pin holes on the drum.

Consumables

3. Maintain pressure on the drum and finger-tighten the drum locking knob clockwise to engage the frame and secure the drum as shown in Figure 4-30.

Drum locking knob
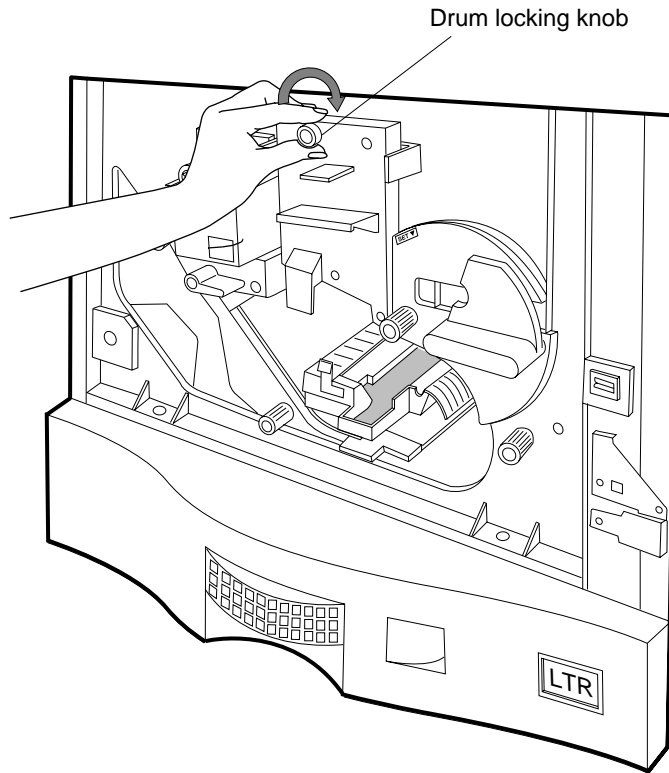
Figure 4-30   Securing the Drum

4. Rotate Lever b1 counterclockwise to lock the drum in place.

Installing the New Transfer Assembly

1. Remove the transfer assembly from its packaging.

⚠ **Caution**   As you handle the transfer assembly, take care not to touch or damage the transfer wire.

2. Using the alignment pin located on the end of the transfer assembly, insert the alignment pin of the transfer assembly into the left rail of the transfer assembly guide and push in to the end of the guide as shown in Figure 4-31.
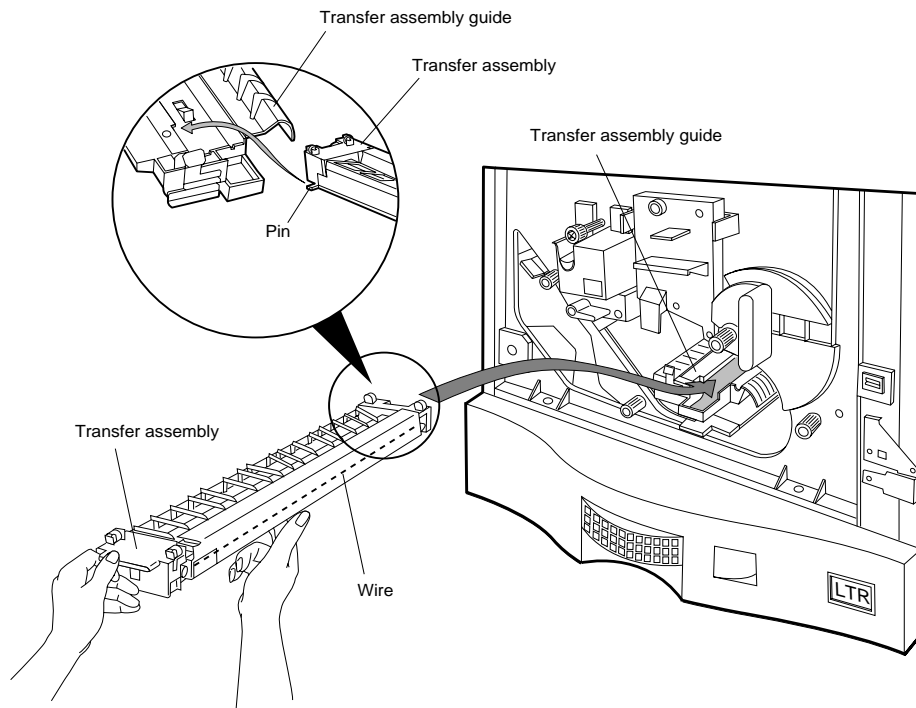
Figure 4-31   Inserting the Transfer Assembly into the Guide

3. Secure the transfer assembly guide by lifting Handle 3 until it snaps into place as shown in Figure 4-32.

Handle 3

Transfer assembly
guide

LTR
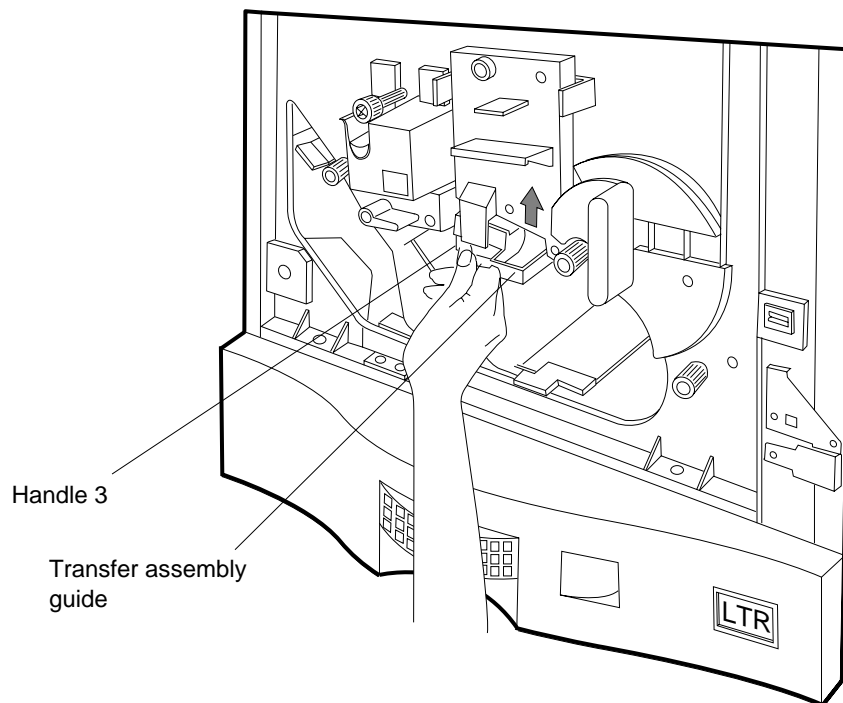
Figure 4-32   Securing the Transfer Assembly

4. Close the front door.
5. Use the drum kit packing materials to repack for disposal.

Fuser Kit - Replacing the Fuser

The fuser is replaced when the Control Panel indicates:

Fuser At End Life
Replace Fuser

This section provides maintenance procedures for removing the old fuser and installing the new one.

Note   This procedure is applicable to both 120-127 VAC and 200-240 VAC fusers.

---

1. Press the Menu button on Main Screen.
2. Press ▼ to highlight Maintenance.
3. Press ► to display Maintenance selections.
4. Press ► to display replace selections
5. Press ▼ to select fuser.
6. Press Select to display fuser instructions, as shown in Figure 4-33.
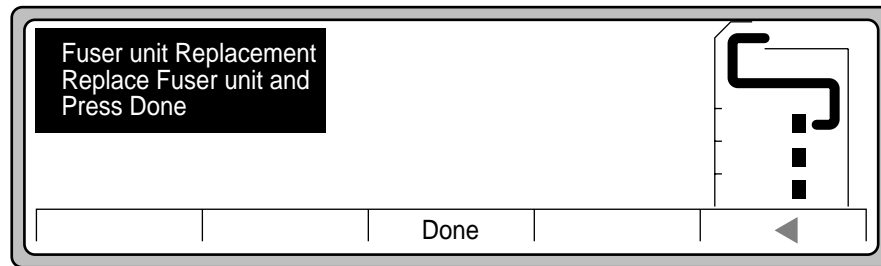
Figure 4-33   Fuser instructions

Consumables

Removing the Fuser

To remove the fuser:

1. Open the front door.
2. Turn the fuser locking knob counterclockwise several times to release the fuser, as shown in Figure 4-34.
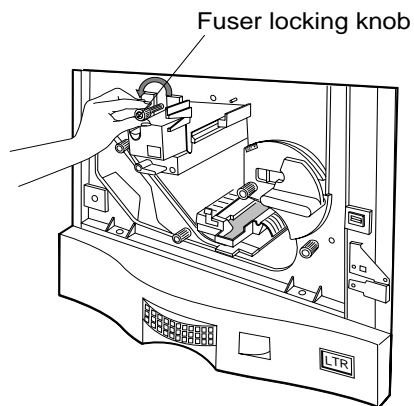
Fuser locking knob

Figure 4-34   Releasing the Fuser Locking Knob

WARNING!   The fuser may be hot. Avoid touching the fuser surfaces labeled as hot.

3. Pull the fuser out, supporting it with your hand, as shown in Figure 4-35.
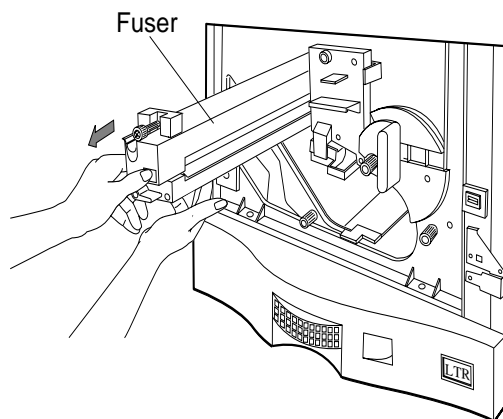
Fuser

Figure 4-35   Pulling the Fuser out

Installing the Fuser

1. Locate and remove the new fuser from its packaging.
2. Place the fuser's leading edge into the guides, then push the fuser into the printer until it stops, as shown in Figure 4-36.
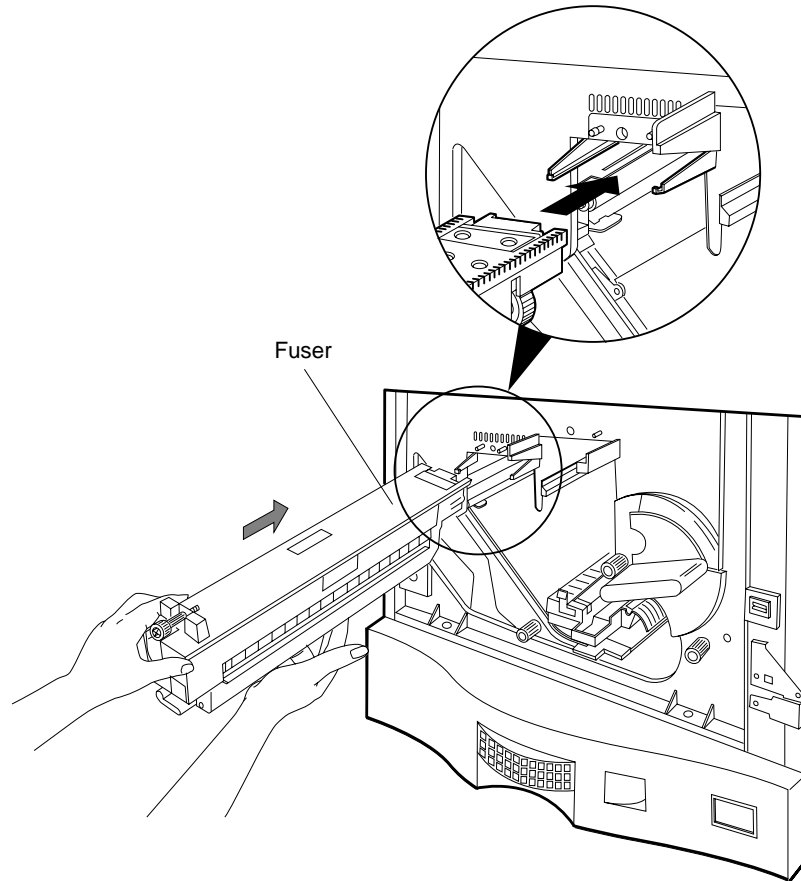
Fuser

Figure 4-36   Installing the Fuser

3. Maintain pressure on the fuser and finger-tighten the fuser locking knob clockwise to engage the frame and secure the fuser into position as shown in Figure 4-37.

    If the fuser does not seat properly, do not force it. Instead, refer to Figure 4-37 while following the next two steps:

    a) Hold the fuser up against the printer using light pressure.
    b) Carefully rotate the decurler roller knob clockwise until you feel the gears turn easily and the fuser seats flush against the printer. Tighten the fuser locking knob.
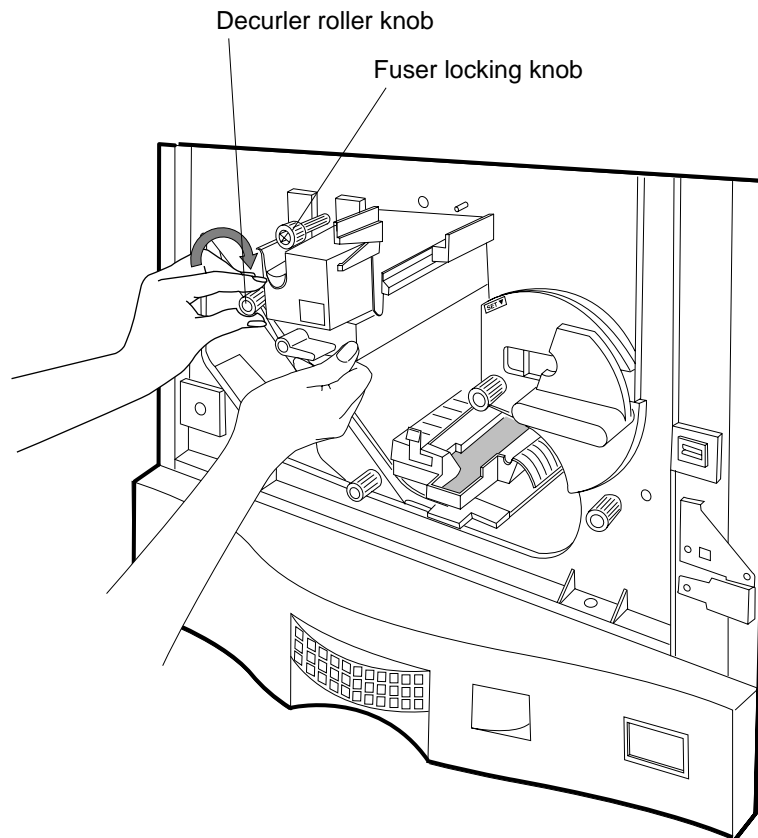
Figure 4-37   Fuser Locking Knob and Decurler Roller Knob

4. Verify all locks and levers are secure and then close the front door.
5. Press Done.

Printer Pick Roller Kit - Replacing the Tray Pick Rollers

Replace the pick rollers whenever the Control Panel indicates:

> Pick Roller At End Life
> Replace Pick Roller

or when you get excessive pick errors.

Each tray and the HCI contain pick rollers. The Control Panel will indicate which one requires replacement. This procedure is applicable to all three printer trays (tray1, tray2, and tray3). For the HCI replacement procedures, see "HCI Pick Roller Kit - Replacing the HCI Pick Rollers" on page 4-42.

At the Control Panel

1. Press the Menu button on the Main Screen.
2. Press ▼ to select Maintenance.
3. Press ► to select Maintenance options.replace should be highlighted.
4. Press Select to enter the replace submenu.
5. Press ▼ to select the set of tray rollers to be replaced.
6. Press Select.

Removing the Printer Pick Rollers (Upper and Lower)

1. To reach the tray pick rollers more easily, remove all three trays from the printer and set them aside, as shown in Figure 4-38 below.
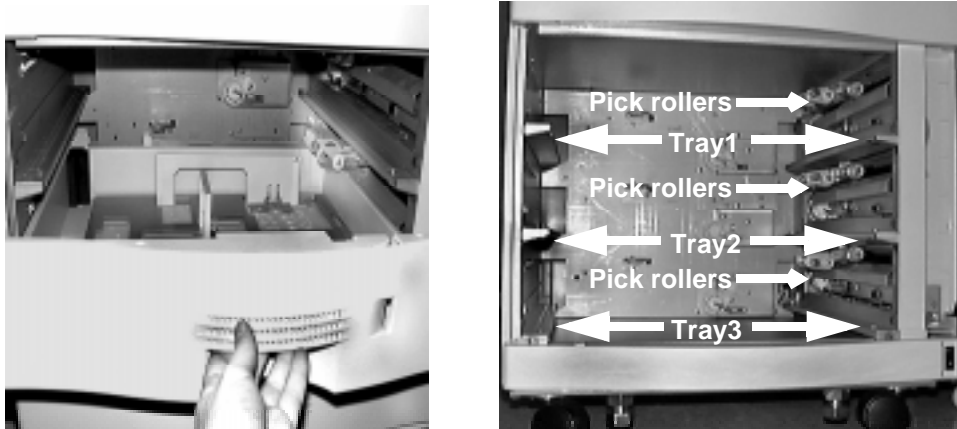
Figure 4-38   Removing Paper Trays - all trays removed

Consumables

2. Locate the thumb screw holding the steel plate over the lower tray roller assembly, as shown in Figure 4-39.
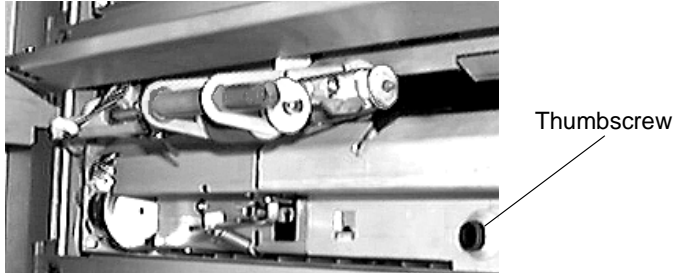
Thumbscrew

Figure 4-39   Locating Thumbscrew

3. Unscrew the thumb screw holding the steel plate by rotating counterclockwise several turns. Place this plate aside for later assembly. See Figure 4-40.

Figure 4-40   Unscrewing Plate

4. Locate the blue plastic clip holding the lower rollers in place. Pull this clip off and set it aside. See Figure 4-41.

Figure 4-41   Removing Lower Roller Clip

5. Pull the two lower rollers off of the lower shaft now. See Figure 4-42.
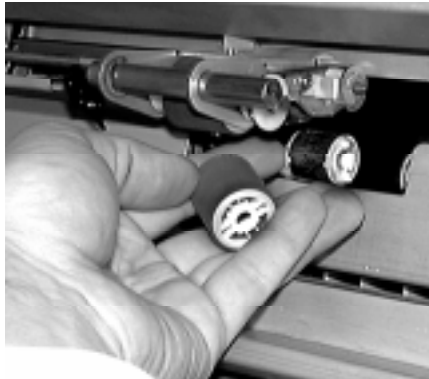
Figure 4-42   Removing Lower Rollers from Shaft

Consumables

6. Locate the blue plastic clip holding the upper rollers in place. Pull this clip off and set it aside. See Figure 4-43.

Figure 4-43   Removing Upper Roller Clip

7. Pull the upper roller assembly off of the upper shaft, as shown in Figure 4-44.

Figure 4-44   Removing Upper Roller Assembly

New Printer Pick Roller Kit

1. Unpack the new printer pick roller kit (Product Number: C5633A). See Figure 4-45.
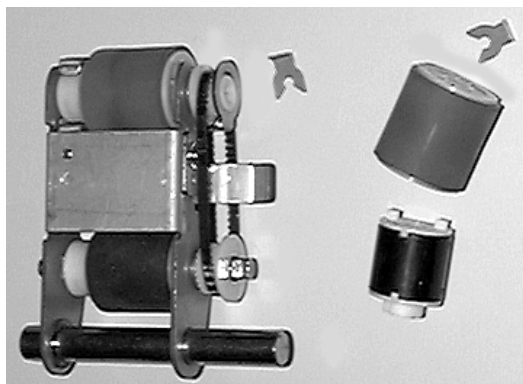
Figure 4-45   Printer Pick Roller Kit

Installing the Printer Lower Pick Rollers

During installation of the lower rollers the torque limiter roller (a smaller lower roller with a black color outside) must go on the lower shaft *first*, as shown in Figure 4-46.
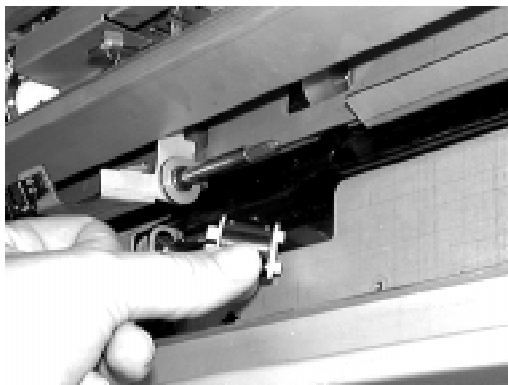
Figure 4-46   Installing Torque Limiter

Consumables

1. Install the smaller lower roller (torque limiter roller) so that the notch in the roller's plastic fits over the metal pegs on the shaft. When this roller is correctly in all the way, the roller is locked and will not rotate. See Figure 4-47.
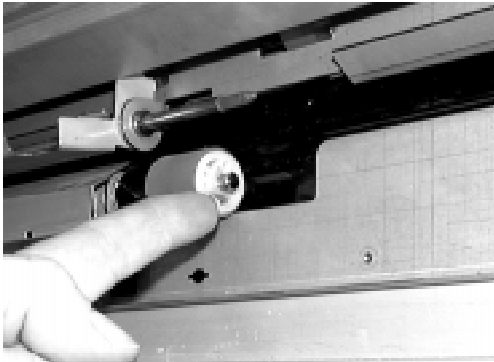
Notch correctly positioned to go over metal peg
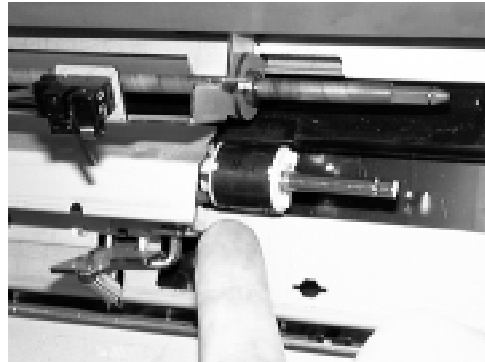
Roller correctly installed all the way, with notch over the metal peg

Figure 4-47   Correct Torque Limiter placement

2. Install the larger lower roller on the same shaft. The larger roller (when correctly positioned) fits onto two small plastic pegs on the smaller lower roller. You may need to rotate the larger roller against the smaller roller until it snaps into place. See Figure 4-48.
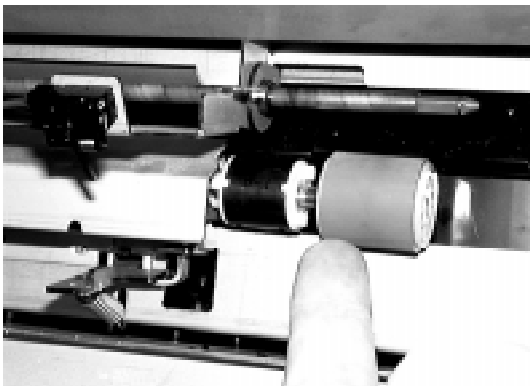
Larger lower roller positioned on the same shaft as the smaller roller
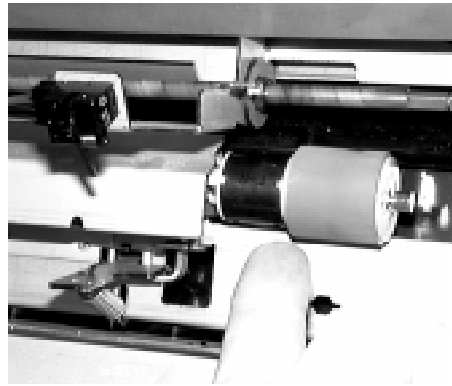
Larger lower roller rotated to engage plastic pegs on smaller

Figure 4-48   Correct Larger Lower Roller placement

3. Snap the blue plastic clip into place. It fits over a groove on the end of the shaft to secure the lower rollers. See Figure 4-49. If you don't see this groove, the rollers may not be completely seated all the way onto the shaft.

Blue clip placed on lower roller shaft

Blue clip snapped into place on lower roller shaft groove

Figure 4-49   Blue Clip snapped into place

Installing the Printer Upper Pick Rollers

When you install the printer's upper pick rollers, the slot on the pick roller assembly must mate with the corresponding mounting tooth on the printer bracket. See Figure 4-50.

Slot

Metal tooth
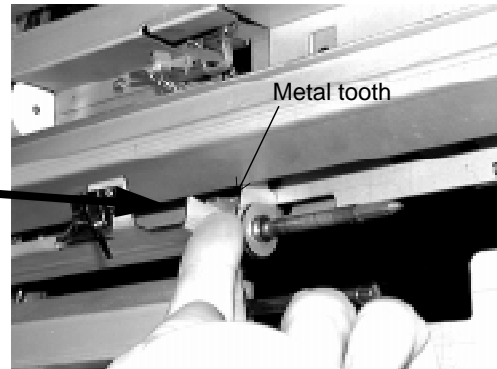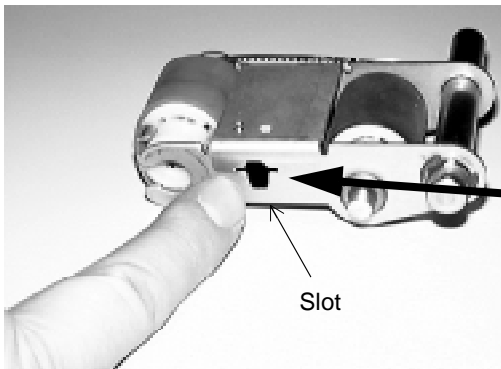
Figure 4-50   Upper Pick Roller Assembly Slot and Mounting Tooth on printer

Consumables

4. Install the new upper pick roller assembly over the shaft. See Figure 4-51.

Figure 4-51   Installing Upper Roller Assembly

5. Push the upper roller assembly all the way onto the shaft. You may have to jiggle the assembly a little as you push it to seat it correctly.

6. Snap the blue plastic clip into place. It fits over a groove on the end of the shaft to secure the upper roller assembly. If you don't see this groove, the assembly may not be completely seated all the way onto the shaft. See Figure 4-52.

Figure 4-52   Installing Upper Roller Clip

Installing the Covers and Trays

1. Attach the metal plate to the printer frame with the thumbscrew. Turn the thumbscrew clockwise several turns until it is snug. Do not overtighten. See Figure 4-53.

Figure 4-53   Attaching Plate

2. Replace the three paper trays back into the printer, as shown in Figure 4-54.
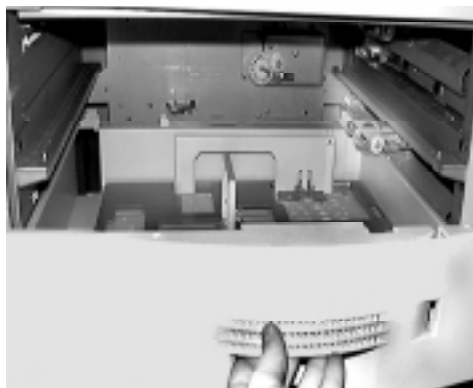
Figure 4-54   Installing Paper Trays

3. Press Done on the Control Panel.
4. Perform the Paper Path Alignment procedure described in "Adjusting Paper Path Alignment" on page 6-11.

Consumables

HCI Pick Roller Kit - Replacing the HCI Pick Rollers

This section provides the procedures to remove and replace the HCI pick rollers. When the HCI pick rollers need to be replaced the Control Panel indicates:

HCI Pick Roller At End of Life
Replace HCI Pick Roller

or when you get excessive feed errors from the HCI.

Note   We recommend that you use a small flashlight to help you see the inside of the HCI while working in it.

At the Control Panel

1. Press the Menu button on the Main Screen.
2. Press ▼ to select Maintenance.
3. Press ► to select Maintenance options. replace should be highlighted.
4. Press Select to enter the replace submenu.
5. Press ▼ to select the HCI tray rollers. The HCI option only appears if the HCI is installed.
6. Press Select.

Removing the HCI Pick Rollers (Upper and Lower)

1. Release the HCI from the printer and slide the HCI back on its rails, as shown in Figure 4-55.
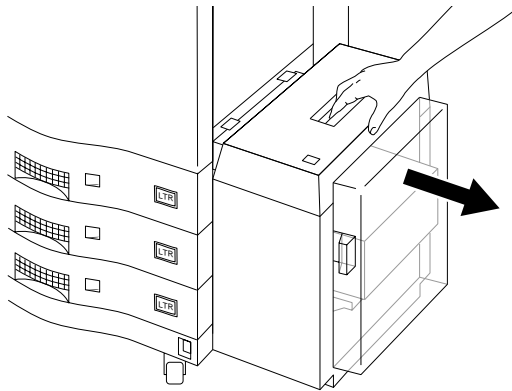
Figure 4-55   Sliding HCI away from printer

2. Open the HCI door, press the HCI top button to lower the shelf, and then remove any paper as shown in Figure 4-56. The printer must be powered on and the HCI must be connected to the printer for the HCI top button to lower the shelf.
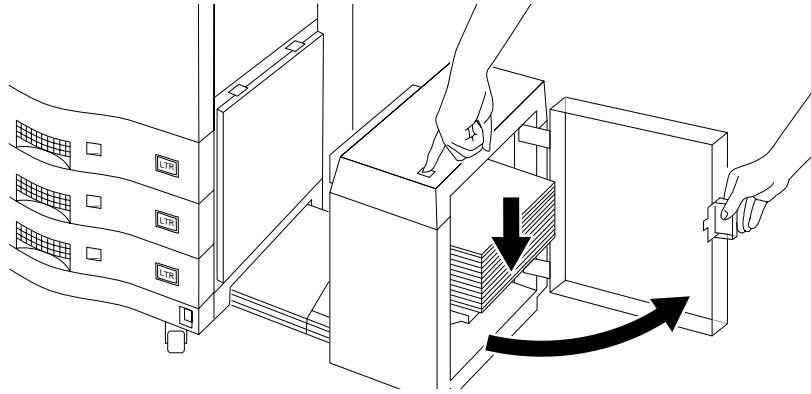
Figure 4-56   Opening the HCI

3. Locate the back of the HCI and carefully remove the retaining springs providing tension to the lower roller assembly, as shown in Figure 4-57. Notice how these springs are attached to the lower roller assembly.
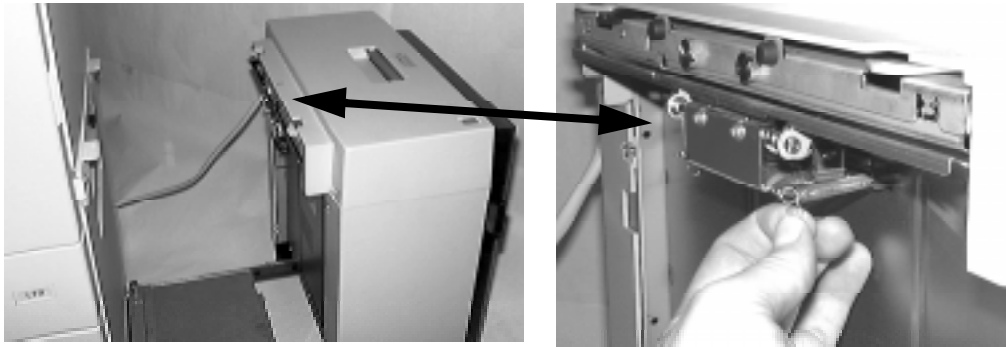
Figure 4-57   HCI Rear and Lower Roller Assembly Springs

4. Locate the white plastic clip securing the lower roller shaft at the far end, shown in Figure 4-58. Remove this plastic clip.

Figure 4-58   Removing Clip From Lower Roller Assembly

5. Grasp the lower roller assembly and slide the shaft to the side away from the retaining clip. Once free, lower the assembly and set it aside.

Figure 4-59   Remove Lower Roller Assembly

6. Move to the front of the HCI.   Locate the upper roller assembly on the top underside of the HCI, as shown in Figure 4-60. Hold this assembly up with your hand.
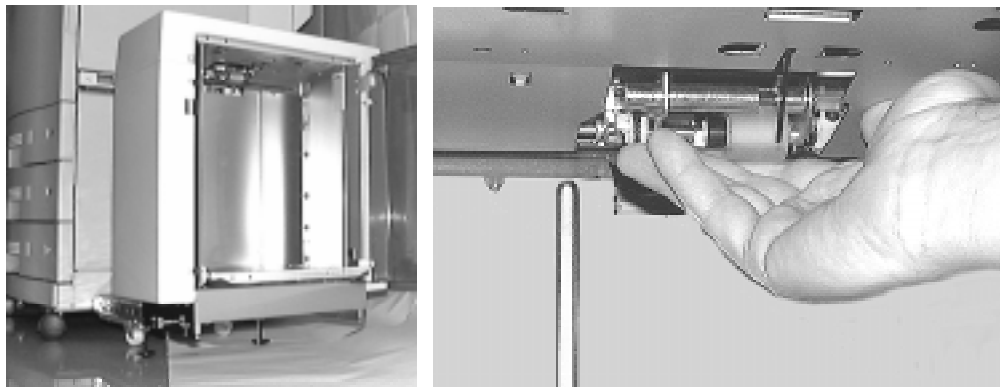
Figure 4-60   HCI interior and Upper Roller Assembly location

7. With your other hand, locate the two thumb screws on the back side of the HCI, as shown in Figure 4-61. Remove these two screws (turn counterclockwise) and set them aside.
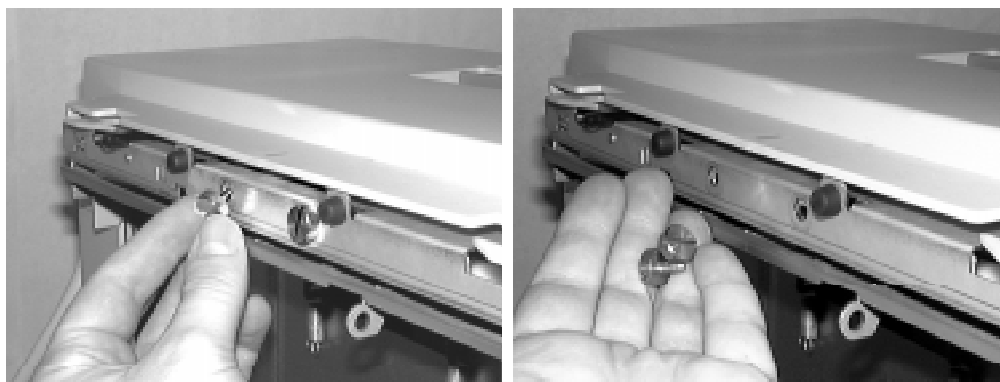
Figure 4-61   Unscrew Thumbscrews and remove

Consumables

8. From the front of the HCI, gently pull out the upper roller assembly, as shown in Figure 4-62. Slide the assembly a little to the right before bringing it out of the HCI.
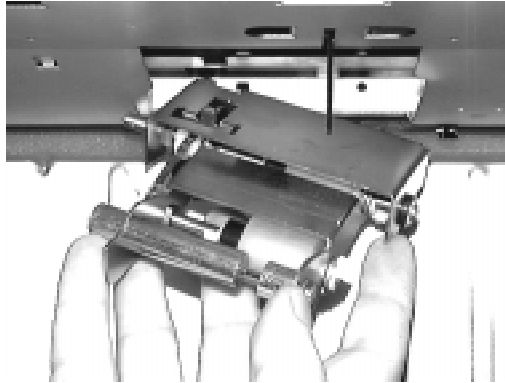
Figure 4-62   Remove Upper Roller Assembly

New HCI Pick Roller Kit

Unpack the new HCI pick roller kit, shown in Figure 4-63.
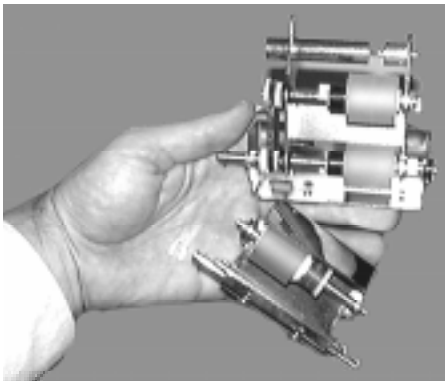
Figure 4-63   HCI Roller Kit

Installing the HCI Upper Pick Rollers

When you install a new HCI pick roller kit, the shaft on the upper roller assembly (left side) goes into the hole. See Figure 4-64.
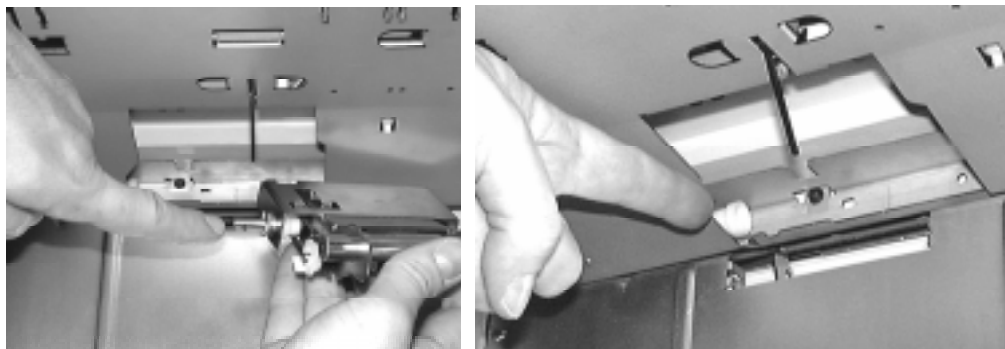
Figure 4-64   Shaft and hole location for HCI Upper Pick Roller Assembly

1. From the front of the HCI, gently guide the upper roller assembly into place, as shown in Figure 4-65.

Figure 4-65   Installing Upper Roller Assembly

Consumables

Ordering and Replacing Consumables 4-47

2. Once the upper roller assembly is in place, gently hold it up and push it slightly to the left (to help the screws engage). See Figure 4-66.
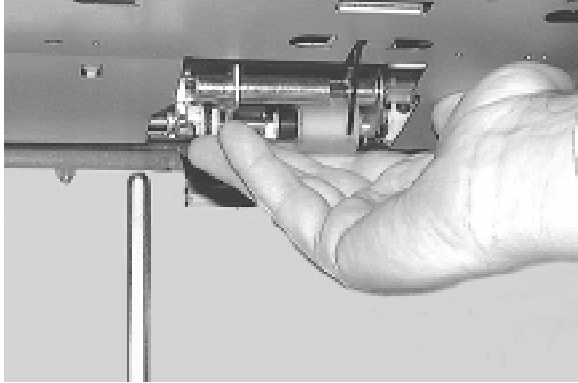
Figure 4-66   Holding Upper Roller Assembly in place

3. With your other hand, place the thumbscrews removed previously into the holes on the back side of the HCI (shown in Figure 4-67). To get the proper screw engagement, you may need to push the upper roller assembly slightly to the left. If necessary, look through the screw holes to judge if the hole is aligned correctly. Tighten the thumbscrews clockwise until they are snug.
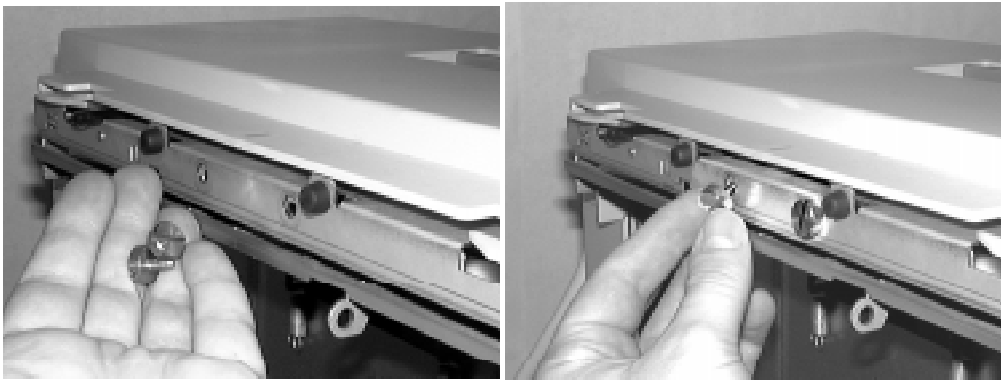
Figure 4-67   Installing Thumbscrews

Installing the HCI Lower Pick Rollers

1. Hold the lower roller assembly and slide the front (closest) shaft into the front metal retaining clip. Slide the back shaft into the back retaining clip. See Figure 4-68.

Figure 4-68   Installing Lower Roller Assembly

2. Snap the white plastic clip into place. It fits over a groove on the back end of the shaft to secure the lower rollers (See Figure 4-69.) If you don't see this groove, the rollers may not be completely seated all the way onto the shaft.

Figure 4-69   Installing Clip onto Lower Roller Assembly

Consumables

3. On the back of the HCI, carefully extend and install each retaining spring to the lower roller assembly. The retaining springs have a "holder" to pull on while extending the spring. See Figure 4-70.

Figure 4-70   Installing Retaining Springs

4. Push the HCI against the printer to lock it into place. Add paper to the HCI and close the HCI door, as shown in Figure 4-71.
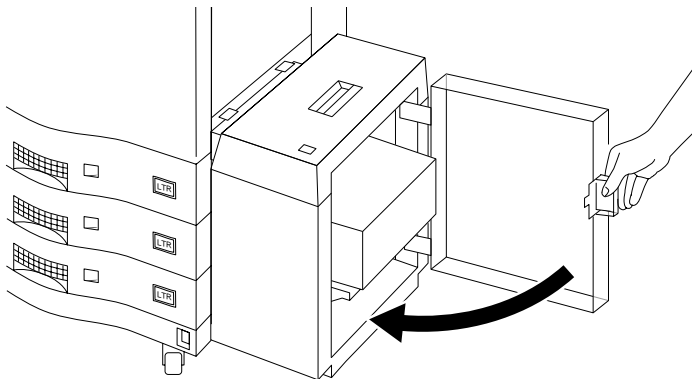
Figure 4-71   Closing the HCI Door

5. Press Done on the Control Panel.
6. Perform the Paper Path Alignment procedure described in "Adjusting Paper Path Alignment" on page 6-11.

Maintenance

Introduction

Cleaning the D640 is an important factor in assuring optimum print quality. There are two cleaning routines to follow:

- a short weekly cleaning routine that removes paper dust and stray toner particles from the exterior of the printer.
- a more thorough internal cleaning procedure that should be performed when you replace the drum.

Weekly Cleaning

Investing just a few minutes on your D640's maintenance each week ensures minimum downtime and maintains high print quality. Make sure someone is responsible for printer maintenance. Perform the maintenance tasks at the recommended intervals.

Use these tools for cleaning:

- Cleaning cloths (supplied with the D640 printer)
- Rags
- Vacuum cleaner specially designed for picking up toner
- Blower brush (supplied with the D640 printer)

Note   Turn the main power switch OFF before performing the weekly cleaning.

⚠ **Caution**   Make sure that the toner vacuum is properly grounded before using it in the printer, or the printer may sustain electrical damage. Refer to the vacuum's operating manual.

Removing Stray Toner

During removal or replacement of various consumable parts, toner occasionally spills onto the printer interior or exterior.

- Do not attempt to clean up spilled toner with water or any other fluid, as this can harm the developer, toner, and printer mechanism.
- Use a vacuum cleaner especially designed for trapping toner particles. Regular vacuum cleaners cannot trap the fine toner particles and will exhaust them back into the air. If you are unsure which vacuum cleaner to use, consult your service representative.

Toner Hopper Area

To clean the toner hopper area, follow these steps:

1. Turn off the main power switch, and open the upper right cover.

2. Use the toner vacuum to remove any toner on the upper surface of the toner hopper. Use the supplied cleaning cloths to wipe up any toner or dust off the outside of the toner hopper area. Clean all the way across the toner hopper area, paying careful attention to the area in and around the toner hopper. Figure 5-1 illustrates the cleaning procedure.

Figure 5-1   Cleaning Toner Hopper area

3. Close the upper right cover.

Precharger Area

The precharger is a wire located inside the drum. The drum contains a built-in cleaning rod to remove toner that might build up on the precharger wire.

To clean the precharger, follow these steps:

1. Pull out the precharger cleaner handle (Figure 5-2), then push it back into its original location. Repeat this "out-in" process 4 or 5 times.

Precharger cleaner
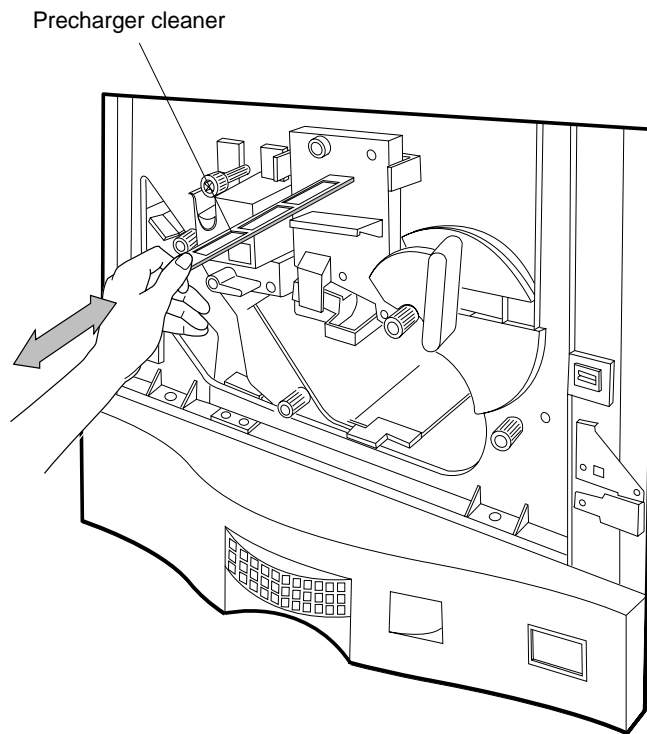
Figure 5-2   Cleaning the Precharger

2. Push the precharger cleaner in completely.

Paper Feed Area

To clean the paper feed area, follow these steps:

1. Open the lower right cover.
2. Use the supplied cleaning cloths to wipe up any toner or dust off the paper feed mechanisms in this area, on the inside area and on the cover area. Clean all the way down to the base of the printer to ensure a thorough cleaning. See Figure 5-3.

⚠️ **Caution**   To avoid damage to the paper sensors in the paper feed area, wipe the area from bottom to top.
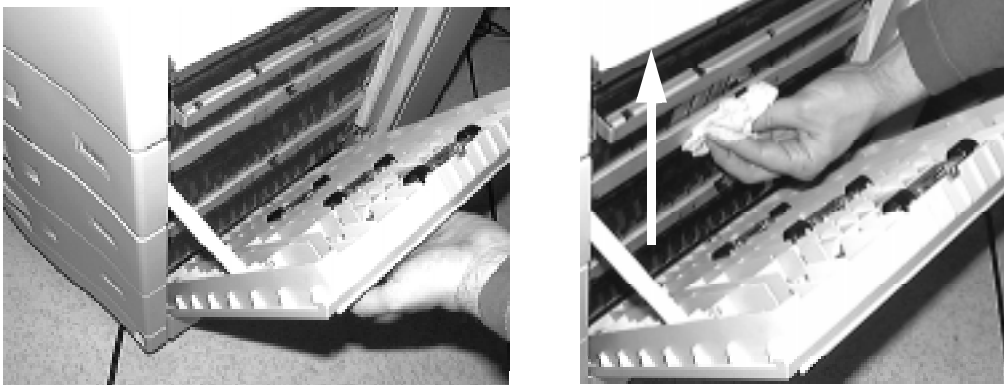
Figure 5-3   Cleaning Paper Feed Area

3. Close the lower right cover.

Paper Input Trays

To clean the inside of the paper input trays, follow these steps:

1. Remove tray3 from the printer, then remove any paper in it.
2. Use the vacuum cleaner to remove any paper dust or chips from the tray.
3. Reinstall the paper in the tray, and the tray in the printer.
4. Repeat steps 1 - 3 for the other two trays.

Printer Exterior

1. Check the paper output tray on top of the printer and use the vacuum to remove any paper dust or dirt.
2. Vacuum the area around the ventilation slots on the rear of the printer to remove any dust accumulation.

Periodic Cleaning (When Replacing Drum)

Perform the following cleaning routine when you replace the drum assembly.

Reversing Unit Area

1. Turn the main power switch off, and open the front door.
2. Hold lever 5 to the left to open the reversing unit area. See Figure 5-4.
3. Use the supplied cleaning cloths to wipe up any toner or dust off the reversing unit. Clean all the accessible areas, working toward the back of the printer, to ensure a thorough cleaning.
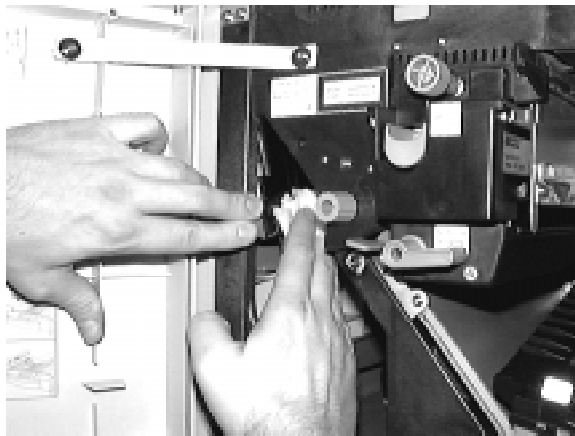
Figure 5-4   Cleaning Reversing area

Duplex Area

> ⚠️ **Caution** As you clean the duplex unit, avoid wiping the paper sensor from right to left or perpendicular to the paper feeding direction. Wipe the area from left to right.

1. Raise lever 6 and use the supplied cleaning cloths to wipe up any toner or dust off the duplex area in this area, wiping from left to right. Wipe all of the accessible area to ensure a thorough cleaning. See Figure 5-5.
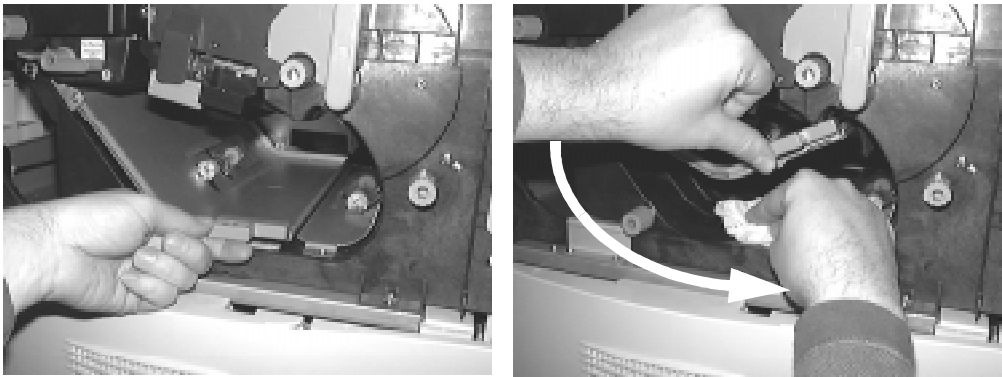
Figure 5-5   Cleaning Duplex Area

2. Lower lever 6 to close the duplex unit.
3. Wipe away any paper dust or toner on the upper surface of the duplex unit.

Transfer Assembly - Transfer LED Areas

To clean the transfer assembly:

1. Use the supplied cleaning cloths or the vacuum cleaner to wipe any toner or dust off the outside of the transfer guide and paper guides.

   As you handle the transfer assembly, take care not to touch or damage the transfer wire.

2. Pull out gently on Handle 3 to unlatch and release the transfer guide. Gently lower the transfer guide and let it rest on the bottom of the printer's interior. See Figure 5-6.
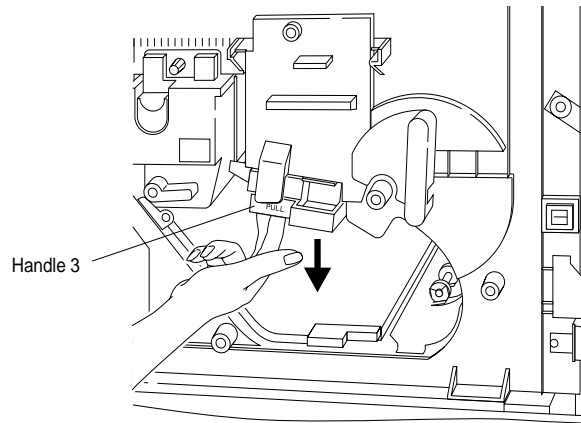
Figure 5-6   Handle 3 and Transfer Assembly Guide

3.   Push in and pull up on the transfer assembly to free it from the guide assembly, as shown in Figure 5-7.
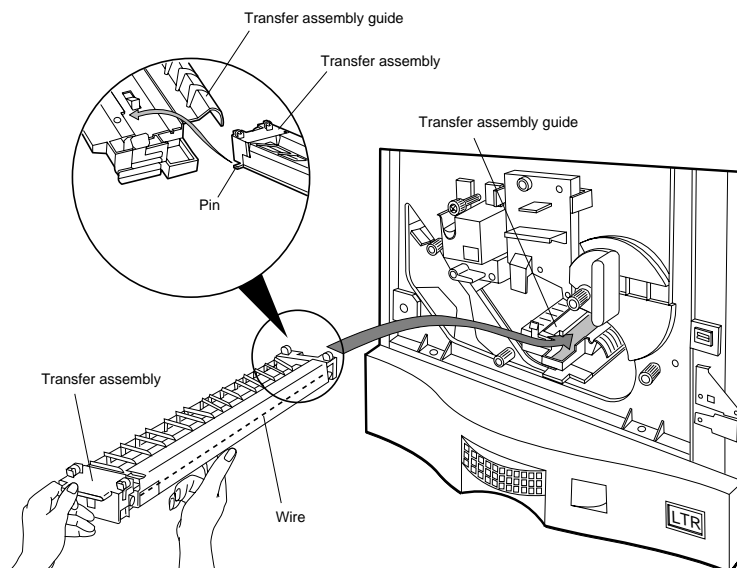
Figure 5-7   Removing the Transfer Assembly

4. Use the supplied blower brush, stored in a pocket inside the front door, to clean the transfer assembly wire (see Figure 5-8.) Move the brush back and forth across the wires while quickly squeezing the rubber handle. This blows air to help remove toner and paper dust. Turn the transfer assembly over so the opposite side can be cleaned in the same way, and do so. Set the transfer assembly aside in a safe location.
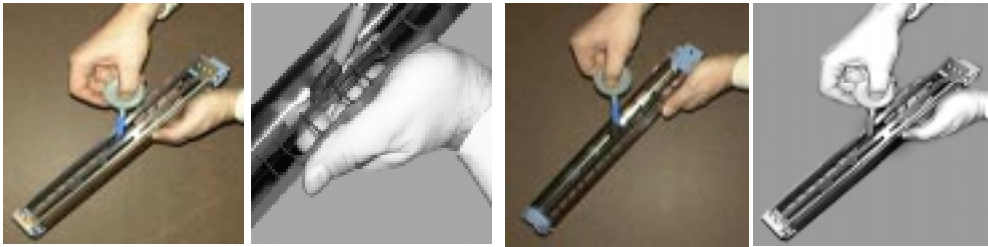
Figure 5-8   Cleaning the Transfer Assembly

Transfer Assembly Guide

To clean the Transfer Assembly Guide:

1. Take out the drum unit (refer to "Removing the Drum" on page 4-21.)
2. Use the supplied cleaning cloths or vacuum cleaner to wipe up any toner or dust off the outside of the transfer assembly guide. Clean all the way to the back of this guide. See Figure 5-9.
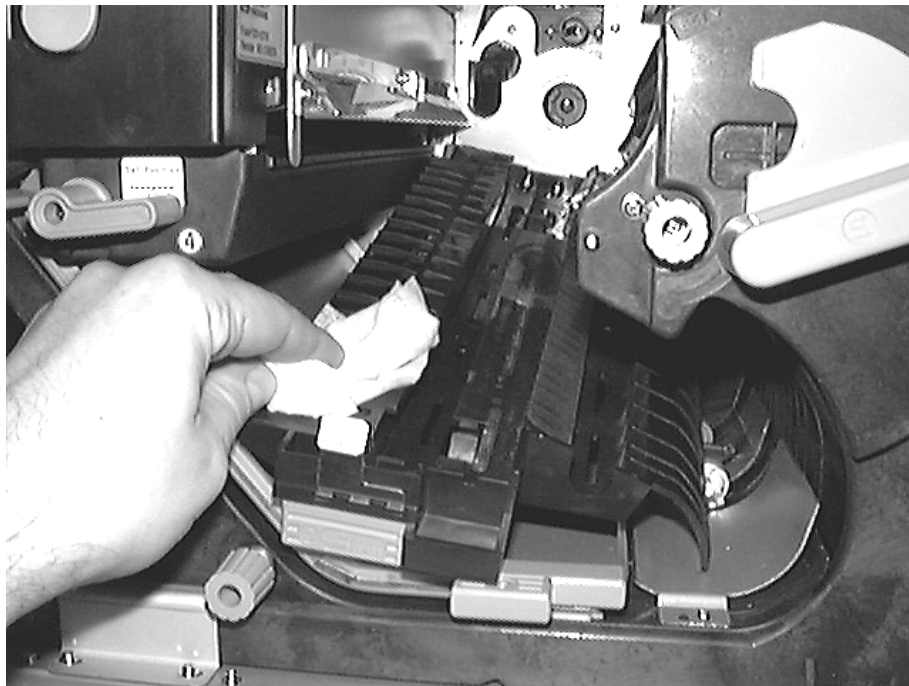
Figure 5-9   Cleaning Transfer Assembly Guide

LED Array Area

To clean the LED Array:

1. Use the supplied cleaning cloths to wipe up any toner or dust off the outside of the LED array. Clean all the way across the LED array. Figure 5-10 shows the LED array and illustrates the cleaning procedure.

> ⚠️ **Caution** Be careful to avoid contacting the developer unit roller on the right side of the area, as this could damage the developer.
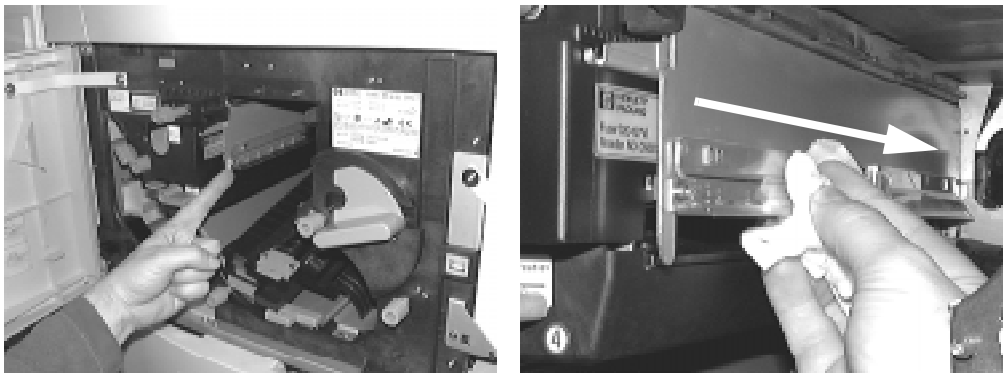
Figure 5-10 Cleaning LED Array

2. Install the new drum assembly, as described in "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.

Reinstalling the Transfer Assembly

1. Using the alignment pin located on the end of the cleaned transfer assembly, insert the alignment pin of the transfer assembly into the left rail of the transfer assembly guide and push in to the end of the guide. See Figure 5-11.
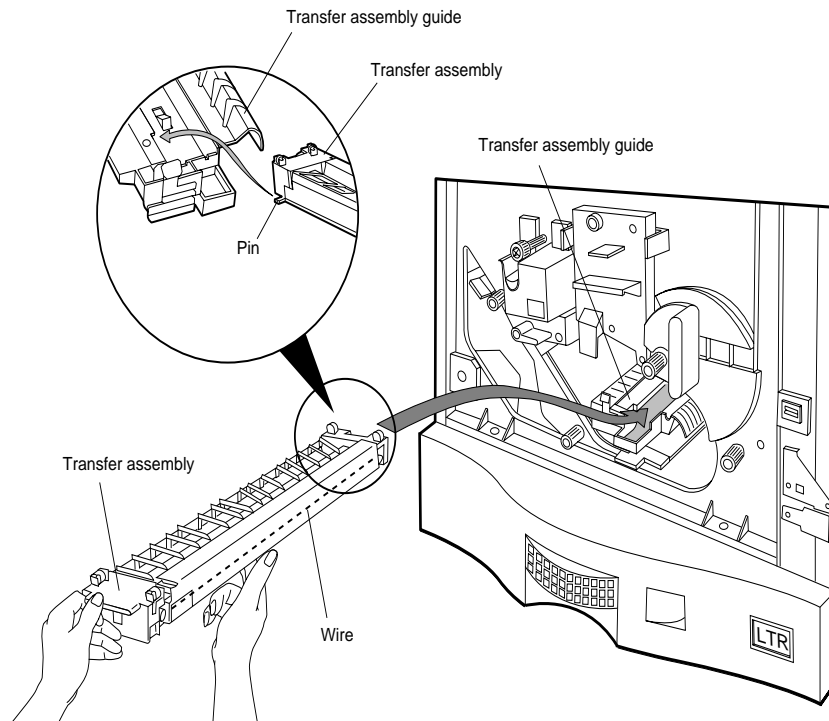
Figure 5-11   Inserting the Transfer Assembly into the guide

2. Secure the transfer assembly by lifting Handle 3, as shown in Figure 5-12.

Handle 3

Transfer assembly
guide
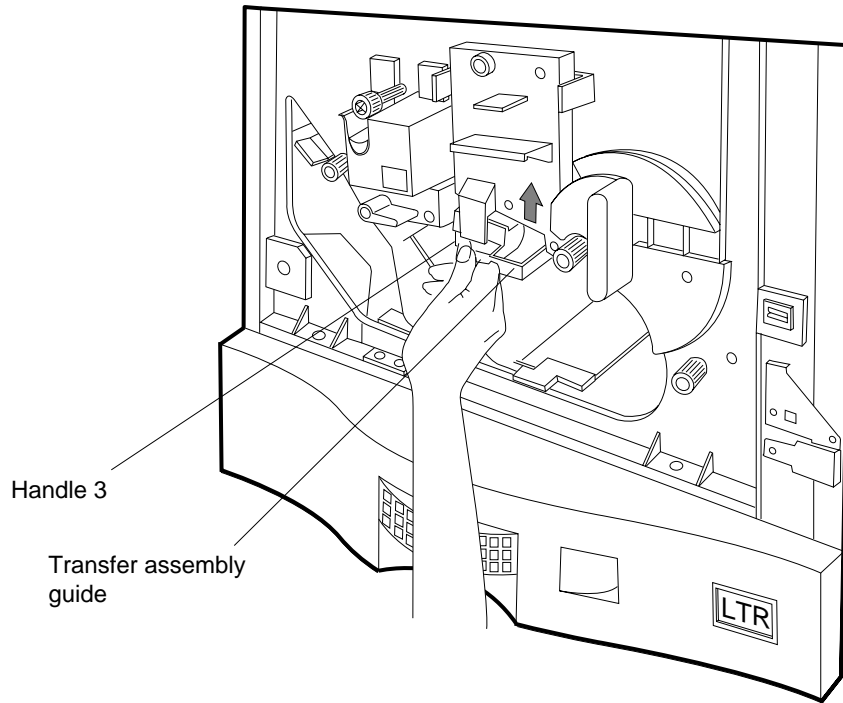
Figure 5-12   Securing the Transfer Assembly

3. Close the front door.

Note   If you have problems reinstalling the transfer assembly, check to see that the drum is installed correctly.

6

Advanced Topics

This chapter presents information about:

- Maintaining print quality
- Managing consumables
- Adjusting paper path alignment
- Setting up edge-to-edge printing
- Configuring for LaserJet compatibility
- Using virtual font cartridges

The topics in this chapter help you find new uses for the printer, manage your consumable supplies, and maintain optimum print quality.

Maintaining Print Quality

In some situations, print quality can be very subjective, and in other situations, the problem is very obvious. This section provides guidelines for making correct diagnosis of the problem to minimize incorrect and needless repairs.

Visual print quality analysis assumes you have maintained the printer according to the required maintenance procedures and schedule. Chapter 5 provides the printer maintenance schedule and procedures.

This section provides print samples, starting with a good quality print. The rest of the print samples are flawed. The consumables that may be responsible for the flaws are included with each sample, along with recommended corrective actions.

Print Quality Troubleshooting

If you are dissatisfied with the quality of your prints:

1. Complete all of the weekly maintenance tasks (see "Weekly Cleaning" on page 5-1).
2. Clean your printer thoroughly (see "Periodic Cleaning (When Replacing Drum)" on page 5-5).
3. Check the quality of your prints.

If you are still dissatisfied with your print quality:

1. Print several test pages of your typical work output and compare the print quality to the samples.

    The print samples provided here are generic, that is, they show specific problems. Your own print samples are typical of your printout problems and so you must compare problem effects and not the actual print pattern.

2. Generate test prints to compare with the quality samples. (See Appendix E for more information.)

3. Identify a print quality sample included in this section that has the same flaws as your print test.

4. Review and complete the actions listed under the print sample in the order in which they are listed, generating a print after you complete each action.

5. Check the print's quality; if the flaw or flaws are still present, continue to the next action in the list. If the flaws are repaired, you do not have to complete the remaining actions.

If you complete all the recommended actions, including changing consumables, and the print quality doesn't improve, you may need to call your service representative to resolve the problem. Refer to "Where To Call For Help" on page F-1 for the telephone number of your nearest Hewlett-Packard service representative. Be prepared to give the service representative the error code and any messages that appear on the Control Panel to assist in troubleshooting.

Print Quality Problems

When you have any print quality problems, check the following items before starting your troubleshooting:

1. Check the Control Panel for any messages about consumables. If there is a "Consumable at end life" message, replace the consumable and retest for print quality.

2. Check whether the paper being used meets Hewlett-Packard standards. (Refer to "Using Paper" on page D-1.)

3. Check whether the paper is handled correctly (especially for creases or wrinkles).

4. Check whether the environment for the printer and the paper meets Hewlett-Packard standards - especially for humidity. Refer to Table C-5, "Printer environmental specifications".

5. Check whether the rollers and the paper guides are clean (especially for scattered toner or developer, accumulated paper powder and paper pieces).

6. Check the Economode setting; be sure it is OFF. (See "Economode" on page 2-17.)

7. Adjust the print density. (See "Density" on page 2-25.)

Good Quality Print Sample
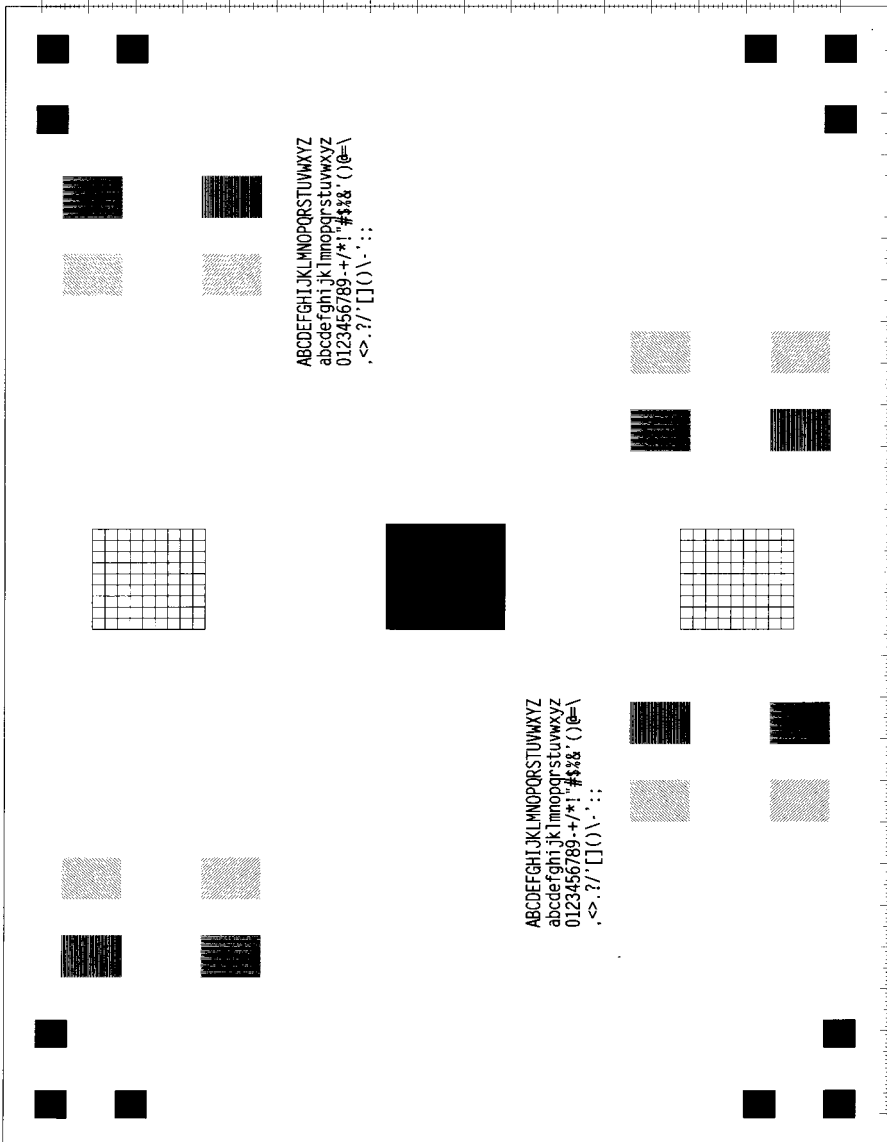
Figure 6-1   Good quality print sample

Specific Print Quality Problems

All sample pages are shown in Letter size and portrait orientation. Similar problems may show up on different paper edges, depending on the paper feed
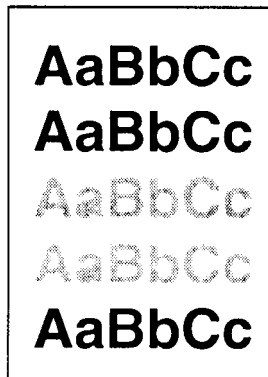
Fading

If a white streak or a faded area appears on the page (in the direction the paper passes through the printer):

- Check the Economode setting; be sure it is OFF. (See "Economode" on page 2-17.)
- The moisture content of the paper may be uneven, or there may be moist spots on the paper. Print several dozen test pages with paper from a newly-opened ream.
- The print density setting may be too light. Adjust the print density. (See "Density" on page 2-25.)
- Toner may be on the transfer charger or pre-charger corona wires. Clean the printer's transfer assembly unit and pre-charger. (See "Transfer Assembly Guide" on page 5-9.)
- Replace the developer in the printer with new developer. (See "Replacing Developer" on page 4-9.)
- Replace the drum unit with a new one. (See "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.)
- If you still have this print quality problem, contact your authorized HP service representative.
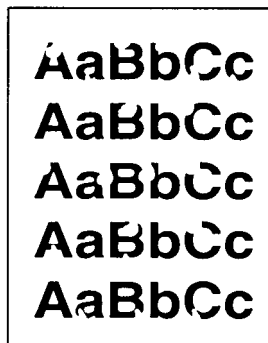
Dropouts

If faded areas, generally rounded, occur randomly on the page:

- The moisture content of the paper may be uneven, or there may be moist spots on the paper. Print several dozen test pages with paper from a newly-opened ream.
- The paper lot is bad. The manufacturing process can cause some areas to reject toner. Try paper from a different source.
- Clean the paper feed path and LED array as described in "Weekly Cleaning" on page 5-1 and "Periodic Cleaning (When Replacing Drum)" on page 5-5.
- Replace the developer unit with a new one. (See "Replacing Developer" on page 4-9.)
- If you still have this print quality problem, contact your authorized HP service representative.
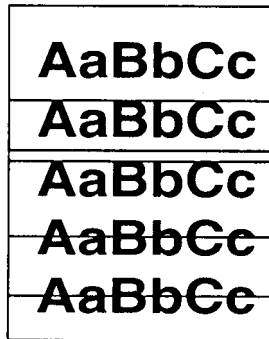
Lines

If sharp or smeared black streaks appear on the page (in the direction the paper passes through the printer):

- Toner may be on the transfer charger or pre-charger corona wires. Clean the printer's transfer assembly unit and pre-charger. (See "Transfer Assembly Guide" on page 5-9.)
- Replace the drum unit with a new one. (See "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.)
- If you still have this print quality problem, contact your authorized HP service representative.
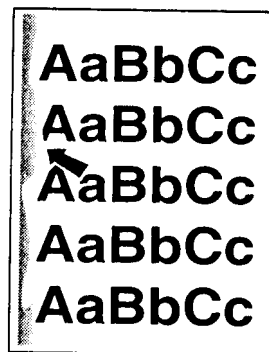
Toner Smear

If toner smears appear on the leading edge (as is passes through the printer) of the paper:

- Toner may be loose inside the printer's paper path. Clean the printer by following the instructions in "Periodic Cleaning (When Replacing Drum)" on page 5-5.
- Replace the drum unit with a new one. (See "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.)
- If you still have this print quality problem, contact your authorized HP service representative.
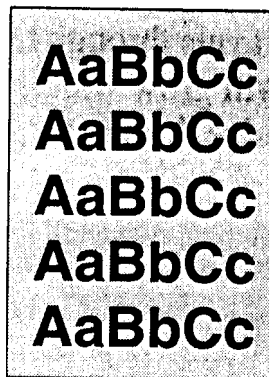
Background Gray Toner Shading

If the amount of background toner shading becomes unacceptable:

- The print density setting may be too high. Adjust the print density (See "Density" on page 2-25.)
- Toner may be on the transfer charger or pre-charger corona wires. Clean the printer's transfer assembly unit and pre-charger. (See "Transfer Assembly - Transfer LED Areas" on page 5-6.)
- Change the paper to a lighter basis weight.
- Check the printer's environment; very humid conditions can increase the amount of background shading.
- Replace old developer with fresh developer. (See "Replacing Developer" on page 4-9.)
- Replace the drum unit with a new one. (See "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.)
- If you still have this print quality problem, contact your authorized HP service representative.
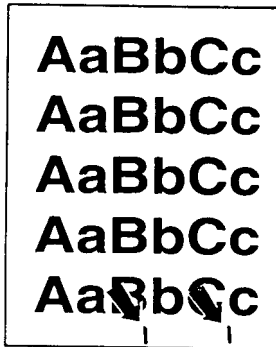
Repetitive Defects

Repetitive marks appear repeatedly on the printed side of the page.

- Replace the drum unit in the printer with a new drum unit. (See "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.)
- Replace the fuser unit in the printer with a new fuser unit. (See "Fuser Kit - Replacing the Fuser" on page 4-29.)
- If you are still having this print quality problem, contact your authorized HP service representative.

Managing Consumables

Use the following checklist to identify actions you can take to maximize consumable yields. Further detailed information is provided later in this section.

1. Keep the printer clean. Follow all the maintenance procedures listed in Chapter 5. Accumulations of toner and paper dust affect the yields of all consumables.

2. Use high-quality media. Factors such as paper chemicals or scratches from unsupported media can damage the drum and fuser. See Appendix A for a description of supported media.

3. Handle all consumables and print media with care. Protect the drum from light and abrasion. Avoid dropping or rough handling of consumables after they are removed from their cartons. Store the consumables and media in a clean, stable environment, preferably at the same location or under the same environmental conditions as the printer.

4. Use the toner management features discussed on page 6-7. The D640 printer supports several features that maximize toner usage.

5. Monitor and, if possible, manage print job sizes. Single-page print jobs are the least efficient for consumable usage. Longer, multiple-page jobs are more efficient.

6. Monitor and, if possible, manage the complexity of printed images. Images which are too complex to print at rated speed (for example, a large, complex PostScript image) reduce the life of the drum and developer. Also, printing repetitive images can wear the fuser rollers unevenly.

7. Avoid frequent lapses into power save mode or frequent power cycling. The start-up process uses some of the life of the drum and developer.

8. Avoid prolonged periods of inactivity with the power switched on. Hewlett-Packard recommends you switch off printers that are inactive overnight if the power save feature isn't used.

Note   The factory yield estimates for consumables are determined under operating conditions which are intended to model a large sample of customer installations. However, it is impossible to model every operating environment, and as result some installations may experience lower consumable yields than expected. Keep a log of actual consumable usage for each printer. This provides the most accurate data to plan consumable purchases.

Toner

Toner yields are primarily driven by the quantity of toner applied to each page. Large black areas, graphic images, gray backgrounds and forms outlines use more toner. If you print mostly or only a small amount of text, you will probably reach or exceed the estimated yield.

Toner yield estimates are based on 4% toner coverage. This is a standard value used by the printer industry, which is based on the assumption that the "typical" A4 or letter-size business letter is 4% covered by black area.

The D640 offers a number of features that, with some trade-offs, can extend toner yield.

Density

The density value is factory set to 10, approximately in the middle of its range. The density value can be set as low as 1 to reduce toner consumption. To the naked eye, solid area patterns will not appear any lighter under lower settings. Reducing the density will have the largest visual effect on gray scale patterns or the small text characters.

Experiment to see if a lower density value can satisfy your print quality requirements. Actual toner savings will vary based on the types of images printed. The density setting can be found under the Maintenance Menu, described in "Density" on page 2-25.

Economode

Most printers simply print a lighter pattern when an economode setting is used. However, the D640 does not lighten the entire image. Instead, dots are turned off in strategic areas to reduce toner use while maintaining readability. When printing text in economode, the character outline is perfectly formed, while the inside uses fewer dots. The effects are nearly invisible to the naked eye at a 10 point character size, but may be more readily seen on large characters.

Experiment to see if economode can be used for some, if not all of your printing. Large text-only reports may be able to use economode with no perceptible reduction in print quality. Economode can reduce toner consumption as much as 50%, depending on the printing pattern.

The Economode setting can be found under the Configuration Menu, described in "Economode" on page 2-17.

Advanced Topics

Recycling

Printers that user powdered toner generally only transfer about 70 to 80% of the toner used for a page image to the paper. The remaining 20 to 30% is known as waste toner because in most printers it is thrown away. In a printer that uses a toner cartridge, the waste toner is never seen because it is moved to a waste area inside the print cartridge.

The D640 printer is unique in the industry, providing the choice of recycling the waste toner or throwing it away. As the printer ships from the factory, the toner recycling mode is disabled and waste toner collects in a bottle. You remove and throw out this bottle each time you add a new bottle of toner. With toner recycling enabled, the waste toner is funneled back into the toner hopper and gradually mixed with new toner.

The disadvantage to recycling toner is a possible slight reduction in print quality. Print may appear lighter and small voids may be visible in dark images. In most text applications, you will probably not notice any reduced print quality with recycling on.   If your application requires the best possible print quality, do not use toner recycling.

Unlike Density and Economode, the effects of toner recycling are not immediately noticeable when you stop recycling.   The waste toner must be completely flushed from the toner path. Depending on how long the recycling feature was used, it might take up to five bottles of new toner before the waste toner is completely flushed from the system.

Toner Recycling Switch

Toner recycling is enabled or disabled by moving the plastic slide switch located directly over the toner collector bottle. When it is pushed to the right, toner is recycled. When it is pushed to the left, waste toner collects in the toner collector bottle for disposal. Figure 6-2 shows the bottle and switch location.

Toner Recycle Slide
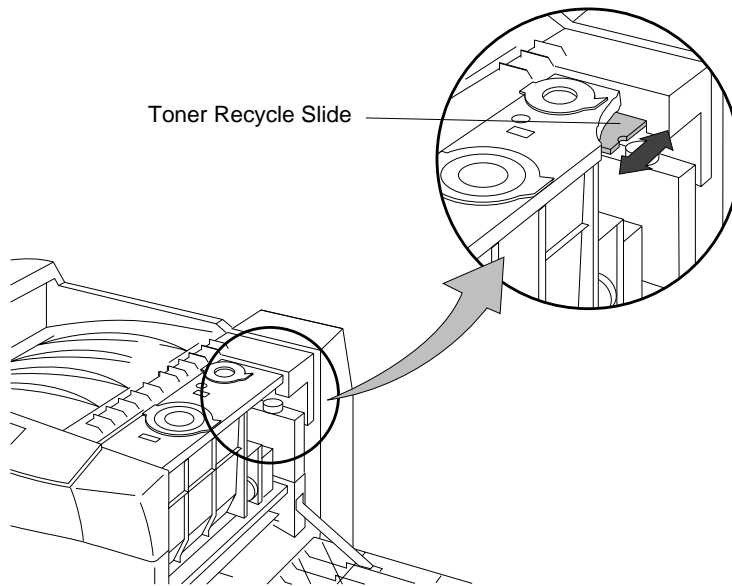
Figure 6-2   Toner Recycling Slide Switch

Drum and Developer

The drum and developer are grouped together because their yields depend on drum rotations. There is physical wear on the drum and developer mixture with every rotation of the drum.

The drum is often rotating even when the printer is not printing. Factory yield estimates for the drum and developer, listed on the data sheet and in this manual, can never be accurate because there is not a one-to-one correspondence between drum rotations and printed pages. However, the internal counters in the printer do count drum rotations for both the drum and developer. The drum life is estimated at 250,000 drum rotations and the developer life is estimated at 160,000 drum rotations.

The drum rotates during power up, at the start and end of each job, and while printing each image. Knowing what factors drive drum rotations helps you understand what determines the lives of your drum and developer.

Frequent power cycling or lapses into power save mode add wear to the drum and developer. During power-up or coming out of power save mode, the drum rotates for up to two minutes. This can produce as many as 80 drum rotations even though no pages are printed.

The average number of pages in print jobs has a large effect on drum and developer life. Extra drum rotations occur at the start and end of each job. There are four rotations at the beginning and four rotations at the end. If the D640 primarily prints very small jobs (less than 25 pages), you get lower than rated yields on the drum and developer. If you primarily print jobs larger than 25 pages, you get higher than expected yields.

There is also a negative effect on drum rotations if you print complex images that slow the printer down. If the printer controller cannot process the incoming data fast enough to keep the printer running at 40 pages per minute, extra drum rotations occur for the print job.

The estimated yields for the drum and developer assume a job size of 25 page sides per job. It is not important if you occasionally print small jobs or complex images; it's important how your print environment averages usage over a long period of time.

The drum surface is easily damaged by scratches, long exposure to fluorescent light (30 minutes), or exposure to direct sunlight (which may cause gray background shading). The estimated yields do not account for replacement due to these factors.

Scratches can occur from unsupported media and may be significant enough to require the drum to be replaced prior to the printer indicating the drum has reached its end of life.

Paper which emits certain chemicals or large amounts of paper dust can cause excessive drum wear. If you this problem, contact your service representative or the paper manufacturer.

Fuser

The fuser yield is controlled by the number of times a letter or A4 sheet of paper passes through it. The printer maintains a counter which increments based on the size of paper used. Factors which may reduce fuser life can be related to printing repetitious images, media problems or not replacing the cleaning roller when necessary.

Hewlett-Packard recommends mixing up the types and positions of print images printed among print jobs. Fuser rollers can wear unevenly when a dark image, such as a company logo or a thick dark line, is printed repeatedly in the same position on every page of every print job.

Media can also have an effect on fuser life. Paper which emits certain chemicals or large amounts of paper dust can cause excessive wear. If you suspect problems of this sort, contact your service representative or the paper manufacturer.

For optimum fuser life, replace the cleaning roller after every other bottle of toner, and follow the recommended cleaning procedures in "Duplex Area" on page 5-6. The cleaning roller deposits silicon oil onto the fuser roller surface to prevent toner from sticking. It also cleans away small amounts of toner that adhere to the fuser roller surface. Failure to replace the cleaning roller at the specified times can greatly reduce fuser yields.

Ozone Filter

The ozone filter is replaced after every two bottles of developer.   If replaced as specified, you should always receive the specified yield.

Transfer Unit

The transfer unit is replaced whenever the drum is replaced. Care must be taken to prevent accidental breakage of the delicate wires located inside the transfer unit. Unless physically damaged, you will always receive the specified yield.

Pushing Consumable Life Beyond Estimated Yields

The printer maintains counters to track all consumable use and provides an alert message to inform you when a consumable item needs to be replaced.   The printer will not stop, except for lack of toner or developer, but the message remains until you replace the specified consumable.   There is a built-in "grace period", so the message to replace a consumable should occur long before you see any print quality or paper jam problems.

When you get a "Toner Low" or "Developer end-life" message, it is best to add toner or developer as soon as possible. If toner runs out completely, or the developer reaches its end-life, the printer stops printing to prevent damage to the print engine.

Toner and developer are the only consumables for which the printer physically stops. If you have a carefully monitored environment, you can watch the print quality and change the consumables (other than toner and developer) only when absolutely necessary. This tactic may further extend the replacement cycles of your consumables at your own risk.

Adjusting Paper Path Alignment

Over time, the paper path alignment may change slightly from the factory-set position. The following paper path alignment procedure will set the printing alignment for each tray to ensure correct print position. This procedure looks complicated, but after you have performed it a once or twice, it should only take a few minutes to complete. It may need to be repeated periodically to ensure proper alignment, but if you only print on blank paper, alignment is usually not critical.

This procedure sets alignment for both simplex and duplex pages. If you have an HCI installed, you can also set alignment for it.

Before proceeding, make sure that there is adequate (20 - 30 sheets) paper in each tray and the HCI (if installed). This amount is necessary for accurate feeding.

Note   Please read through the entire procedure before performing any of the steps.

This procedure includes the following tasks:

- Printing alignment sheets. When you run the alignment program from the printer's hard drive, the printer produces a set of alignment pages.
- Measuring alignment. By measuring the current alignment for each tray against a reference standard, you simply add two numbers to determine new alignment values.
- Setting alignment values. Once you have determined new values, enter them in the Control Panel and recheck the alignment.

Printing Alignment Sheets

1. Verify that all three paper trays and the HCI (if installed) have Letter (or A4) size paper.
2. Press the Test button on the Main Screen, shown in Figure 6-3.
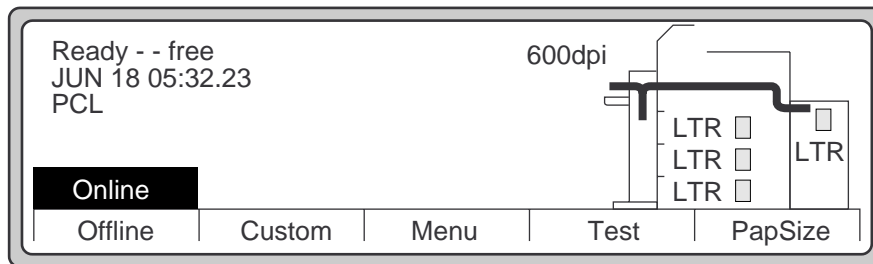
Figure 6-3   Main Screen

3. Use ▼ to scroll down and highlight filesC, as shown in Figure 6-4, and press Select.
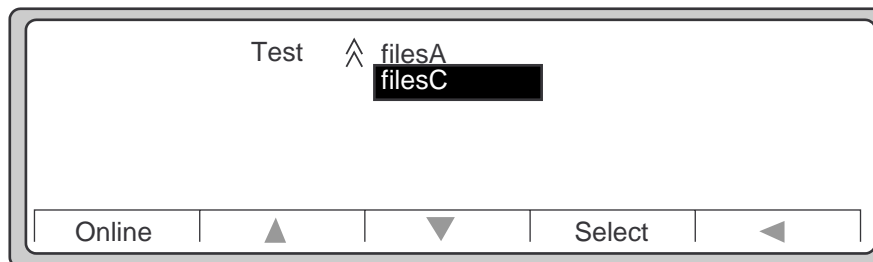
Figure 6-4   Test Submenu

4. From the filesC submenu shown in Figure 6-5, use ▼ to highlight USER_ADJ, then press Select.

```
                    C:\     dir
                            USER_ADJ\
                            PCLS\
                            PS\
                            MAINT\
                         ⩔  FONTS\
   ┌─────────┬─────────┬─────────┬─────────┬─────────┐
   │ Online  │    ▲    │    ▼    │ Select  │    ◄    │
   └─────────┴─────────┴─────────┴─────────┴─────────┘
```
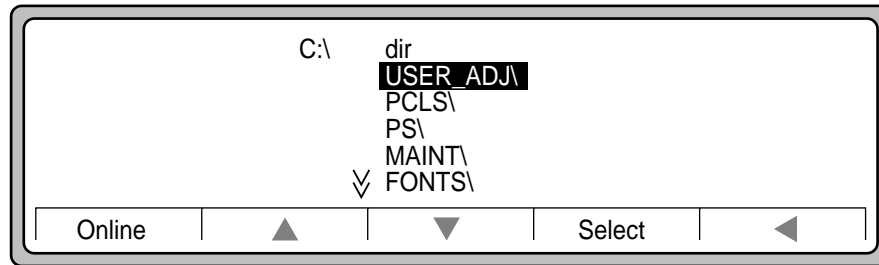
Figure 6-5   FilesC submenu

5. Use ▼ to highlight ALIGNSET.*, then press Select.

    The last two numbers refer to the program version number, which may be different from the version number shown in these illustrations. See Figure 6-6.

```
              C:\USER_ADJ\     dir
                               ALIGNSET.12



   ┌─────────┬─────────┬─────────┬─────────┬─────────┐
   │ Online  │    ▲    │    ▼    │ Select  │    ◄    │
   └─────────┴─────────┴─────────┴─────────┴─────────┘
```
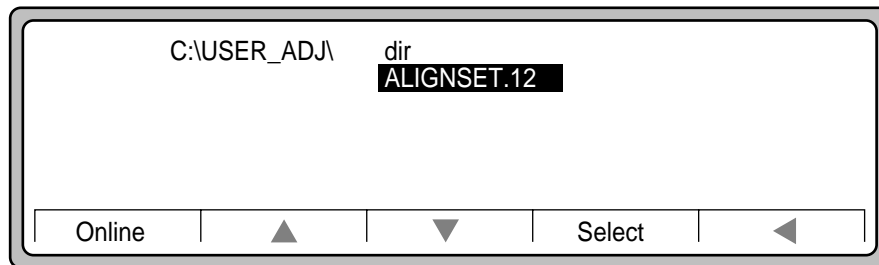
Figure 6-6   ALIGNSET.12

Advanced Topics

6. The number 1 will appear in front of the ALIGNSET.* message, as shown in Figure 6-7.

```
C:\USER_ADJ\     dir
                 1 ALIGNSET.12

   Online      ▲        ▼       Select      ◄
```
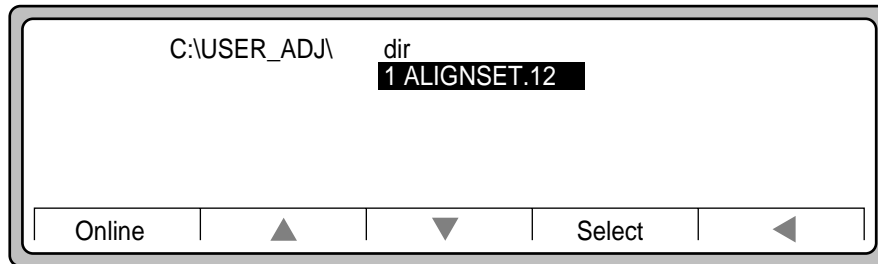
Figure 6-7   1 ALIGNSET.*

7. Press Online.

Note After pressing Online, there will be a few seconds delay as the printer loads the program.

The printer then produces six sheets:

- a *Simplex feed alignment ruler* sheet. See Figure 6-8.
- a set of alignment sheets, one from each tray (and the HCI if it is installed.) See Figure 6-9.
- a *Duplex unit alignment ruler* sheet, which measures the duplex sideways and lengthwise alignment values (duplexv means "duplex vertical") See Figure 6-12.

The Simplex feed alignment ruler sheet contains:

- instructions for the alignment procedure
- a reference scale to measure the alignment sheets
- a workspace to calculate alignment values and adjustments

When the printer has finished printing these pages, you are ready to begin measuring the alignment pages.

Measuring Alignment

You will now read the adjustment values.

1. Carefully and accurately, fold the top part of the Simplex feed alignment ruler sheet, shown in Figure 6-8.

Adjustment scale

Fold line

Simplex feed alignment

Use this ruler to align individual feeds. Do not use ruler printed on another machine to ensure m
For each sheet from individual feeds measure the required **relative** adjustment and modify accor
panel.

Fold here

Line on printed sheet indicates the required **relative** adjustment.

Align with left edge of printed sheet

Direction of paper motion

Figure 6-8   Simplex Feed Alignment Ruler Sheet

2. On the alignment sheet for tray 1, shown in Figure 6-9, locate the Feed 1 alignment indicator line.

3. Place the simplex feed alignment ruler sheet adjustment scale between the ends of the arrows (at "measure between these two arrows", shown in Figure 6-9).

Feed alignment indicator line

Feed 1: Upper tray
Direction of paper motion

Measure between these two arrows
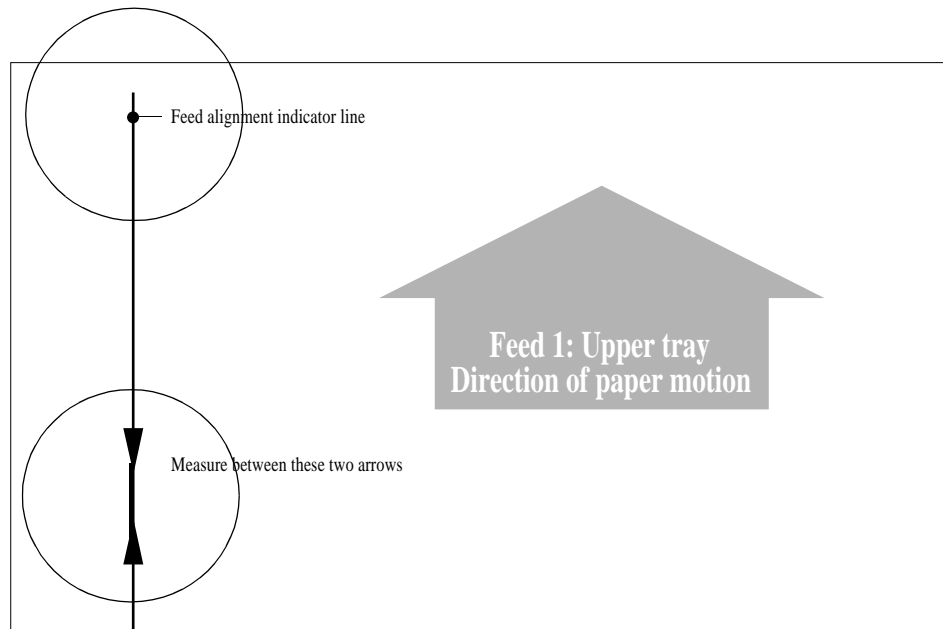
Figure 6-9   Sample Alignment Sheet for Tray1

4. Position the line labeled "Align with left edge of printed sheet" against the left edge of the alignment sheet for tray 1. Figure 6-10 shows how the two sheets should look when properly positioned.

5. The arrow printed on the alignment sheet for tray 1 will intersect the simplex feed alignment ruler sheet scale at some value, as shown in the illustration.

Note Make sure that the tip of the arrow is on the exact edge of the paper. If it is not, your measurement may be inaccurate.
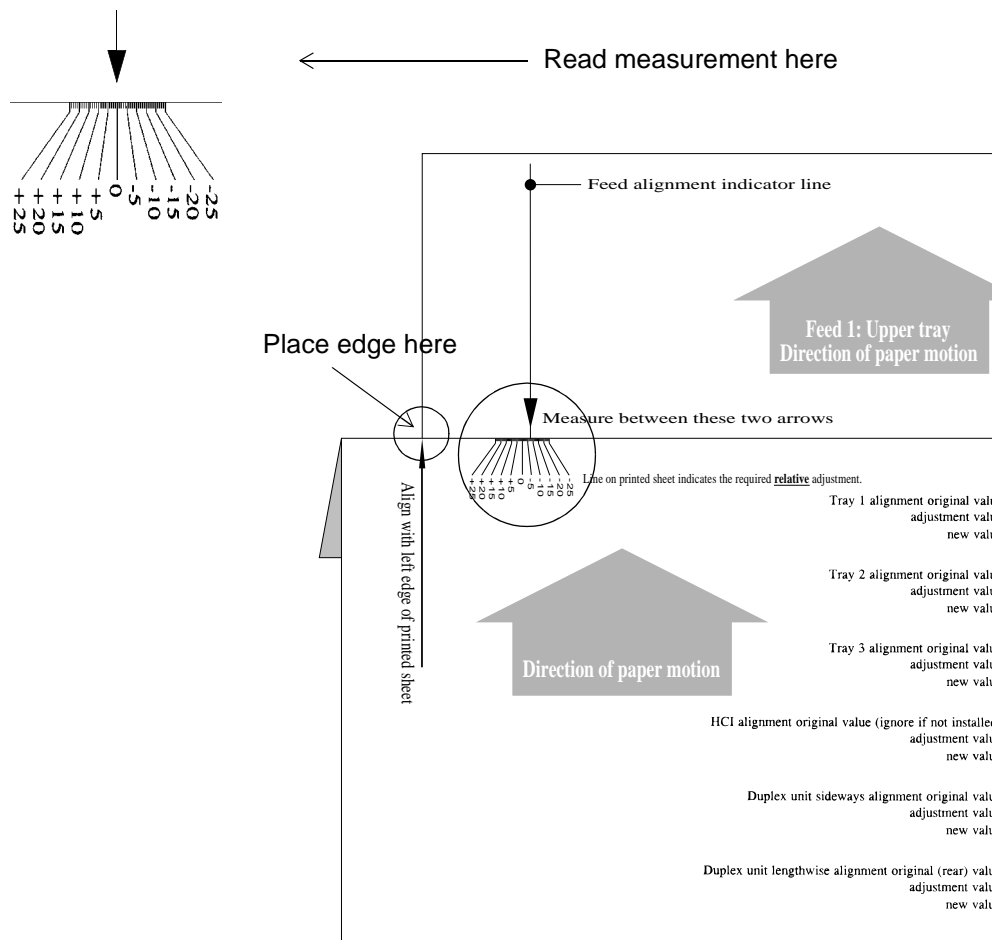
Figure 6-10   Measuring alignment with alignment scale

6. Record this value in the adjustment value area *for tray 1* on the simplex feed alignment ruler sheet. See Figure 6-11.

another machine to ensure main scan direction compatibility
adjustment and modify accordingly using the printer operator

Example

here
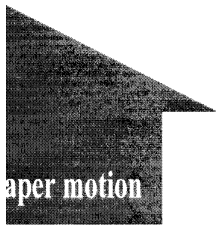
Original alignment value →14
currently in printer

:red **relative** adjustment.

Tray 1 alignment original value:	14	
adjustment value:	-5	←Write in adjustment ——→ -5
new value:	. . .	value from line measurement
Tray 2 alignment original value:	12	
adjustment value:	. . .	
new value:	. . .	
Tray 3 alignment original value:	16	
adjustment value:	. . .	
new value:	. . .	
HCI alignment original value (ignore if not installed):	0 "	
adjustment value:	. . .	
new value:	. . .	
Duplex unit sideways alignment original value:	1	
adjustment value:	. . .	
new value:	. . .	
Duplex unit lengthwise alignment original (rear) value:	0 "	
adjustment value:	. . .	
new value:	. . .	

:per motion

Figure 6-11   Original alignment value and adjustment value

7. Repeat steps 2 through 4 with the alignment sheets for trays 2, 3, and the HCI (if installed).

Note   The printer still prints a sheet for the HCI even if no HCI is present. Simply ignore this page if you don't have an HCI connected and paper installed in it.

8. Now read the values for duplex pages as directed in the next section.

Duplex (Double-Sided) Printing Alignment

Figure 6-12 illustrates the *Duplex unit alignment ruler sheet*, which provides a way to measure the alignment between the printed image on the front and back sides of a double-sided page.

Advanced Topics

Lines printed on **back side** of sheet

Duplex unit alignment ruler

Use this ruler to adjust the duplex unit.
Do not use ruler printed on another machine to ensure main scan direction compatibility.

Look against light source. Line printed on the opposite side indicates the required **relative** lengthwise adjustment to the duplex unit (rear).

Look against light source. Line printed on the opposite side indicates the required **relative** sideways adjustment to the duplex unit.

Figure 6-12   Duplex Unit Alignment Ruler Sheet

1. On the duplex unit alignment ruler sheet, review each side of the paper. View through the paper: hold the paper up to a bright light with the side with the alignment scale facing towards you.

2. The sideways indicator line runs up and down the back of the page on the left. Look for the indicator line and note where it crosses the scale on the left. Record this value on sheet 1 at Duplex unit sideways alignment adjustment value.

3. The lengthwise indicator line runs across the back of the page. Look for the indicator line and note where it crosses the scale in the middle of the page. Record this value on sheet 1 at Duplex unit lengthwise alignment adjustment value.

Setting Alignment Values

You will now calculate and enter the new alignment values into the Control Panel.

1. Calculate the new values.
2. For each adjustment value, add the two numbers and write the new value, as shown in Figure 6-13. If the adjustment value you read off the sheet was 0, no new setting is required for that tray.

lignment ruler

another machine to ensure main scan direction compatibility
adjustment and modify accordingly using the printer operator

here

red **relative** adjustment.
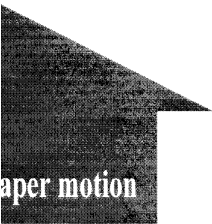
Tray 1 alignment original value:	14
adjustment value:	.-6
new value:	+8

Tray 2 alignment original value:	12
adjustment value:	+3
new value:	+15

Tray 3 alignment original value:	16
adjustment value:	.-2
new value:	+14

aper motion

HCI alignment original value (ignore if not installed):	0 "
adjustment value:	-2.
new value:	-2.

Duplex unit sideways alignment original value:	1
adjustment value:	..0
new value:	.+1

← No adjustment necessary

Duplex unit lengthwise alignment original (rear) value:	0 "
adjustment value:	+7.
new value:	+7

Figure 6-13   Adjustment values entered into work sheet

Once you calculate the new value, enter it in the Control Panel as follows:

3. Press Menu on the Main Screen (see Figure 6-3).

4. Use ▼ to highlight Maintenance, as shown in Figure 6-14, and press ►.

```
                    Menu    Printing
                            Configuration
                            PCL
                            Comms
                            Maintenance

      Online    |    ▲    |    ▼    |    ▶    |    ◀
```
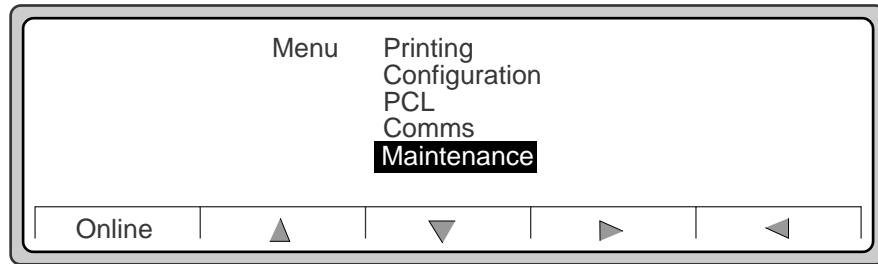
Figure 6-14   Menu

5. From the Maintenance submenu shown in Figure 6-15, use ▼ to highlight alignment and press ►.

```
              Maintenance    replace
                             alignment
                             density     = 10
                             testpages   = 30
                             monitor     = OFF
                             date-time

      Online    |    ▲    |    ▼    |    ▶    |    ◀
```
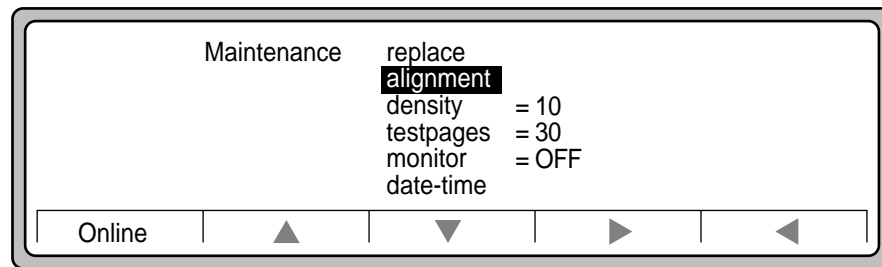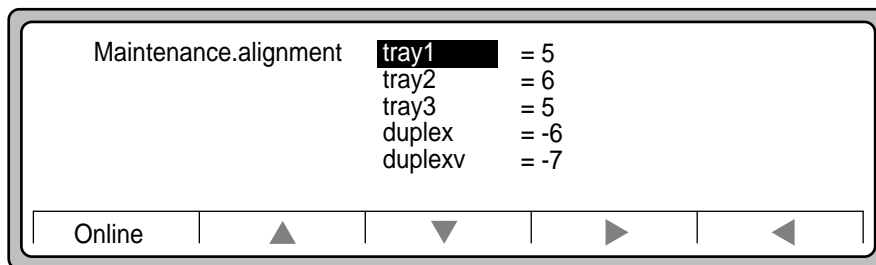
Figure 6-15   Maintenance submenu

Advanced Topics
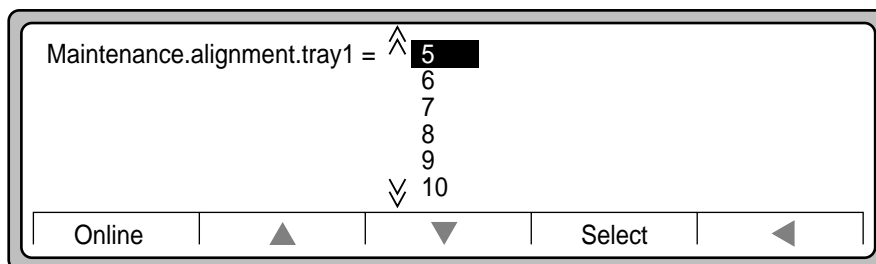
6. Select tray1 and press ►. This is the Maintenance.alignment screen, shown in Figure 6-16.

```
┌──────────────────────────────────────────────────────────────┐
│  ┌────────────────────────────────────────────────────────┐  │
│  │   Maintenance.alignment    [tray1    ]   = 5           │  │
│  │                             tray2       = 6           │  │
│  │                             tray3       = 5           │  │
│  │                             duplex      = -6          │  │
│  │                             duplexv     = -7          │  │
│  │                                                        │  │
│  │   ┌──────┬──────┬──────┬──────┬──────┐                │  │
│  │   │Online│  ▲   │  ▼   │  ►   │  ◄   │                │  │
│  │   └──────┴──────┴──────┴──────┴──────┘                │  │
│  └────────────────────────────────────────────────────────┘  │
└──────────────────────────────────────────────────────────────┘
```

Figure 6-16   Maintenance.alignment Tray1 setting

7. Press either ▲ or ▼ to highlight the tray1 new value calculated on the Simplex feed alignment ruler sheet. The selection range is from -25 to +25, (except for duplex lengthwise, which is +7 to -7). See Figure 6-17.

```
┌──────────────────────────────────────────────────────────────┐
│  ┌────────────────────────────────────────────────────────┐  │
│  │   Maintenance.alignment.tray1 =  ⌃ [5    ]            │  │
│  │                                     6                 │  │
│  │                                     7                 │  │
│  │                                     8                 │  │
│  │                                     9                 │  │
│  │                                  ⌄ 10                 │  │
│  │   ┌──────┬──────┬──────┬──────┬──────┐                │  │
│  │   │Online│  ▲   │  ▼   │Select│  ◄   │                │  │
│  │   └──────┴──────┴──────┴──────┴──────┘                │  │
│  └────────────────────────────────────────────────────────┘  │
└──────────────────────────────────────────────────────────────┘
```

Figure 6-17   Tray1 values

8. Press Select to save the new value and to return to the Maintenance.alignment submenu.
9. Repeat steps 1 through 4 for trays 2, 3, HCI, duplex (duplex sideways), and duplexv (duplex lengthwise).
10. Verify your alignment by repeating the procedure in "Printing Alignment Sheets" on page 6-12. If the alignment is still off (plus or minus 3 to 4 increments or more), note the adjustment values as you did in the previous alignment procedure, and set the new adjustment values in the Control Panel.

Note   A 1 or 2 increment variation may remain after alignment; this is normal.

Setting Up Edge-to-Edge Printing

The D640 printer ordinarily enforces a 1/6" unprintable area around the edge of any page. This is the factory default and produces the best looking output. There may be some cases where you don't want this border. The D640 supports edge-to-edge printing, which allows you to extend printing to the edge of the physical page.

Note   The print quality is not consistent within 1/6" of any edge. This is especially true for the trailing edge of the second side in duplex printing. For this reason, Hewlett-Packard cannot guarantee print quality within this 1/6" area. Your Hewlett-Packard warranty and service contract does not cover service calls related to printing within this 1/6" area.

The quality and squareness of the paper determine print quality when printing close to the physical paper edge. In general, you may experience degraded print quality within .25 inches of any paper edge. When printing in duplex you may need to compensate for shrinkage and curl that may occur when the first side is printed. Lighter weight and recycled papers tend to shrink more then heavier weight papers.

If you define text to start printing at location 0,0 it will print outside the logical page. This may or may not be on the physical page. Figure 6-18 describes the physical and logical page formats.
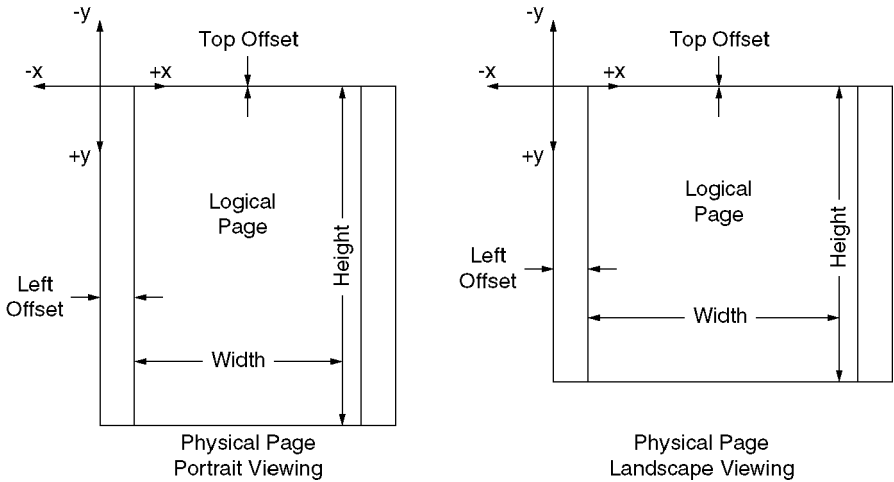
Figure 6-18   Physical and Logical Page formats

Configuring for LaserJet IIIsi and 4si Compatibility

The D640 printer is unique and different from the Hewlett-Packard LaserJet family of printers in general, and from the LaserJet "si" series in particular. While these two printer families share the same printer language (PCL and PJL), there are a number of physical differences to their hardware.

We have included features in the D640 printer to make it behave like a LaserJet 4si, so your print jobs turn out like you expect. In many instances these features also provide compatibility with the LaserJet IIIsi and/or 5si.

This section covers the compatibility features associated with PCL commands.

Paper Input

The D640 has three paper input trays, while the LaserJet 4si has two. The LaserJet5si has three.

HCI selection compatibility is provided through the HCI-Alias Control Panel setting. HCI-Alias enables paper selection compatibility between a LaserJet IIIsi or 4si with an HCI and a D640 with an HCI. You can also set HCI-Alias = HCI to pick paper from tray1, tray2, tray3, or the HCI in response to the PCL commands shown in Table -6-1, "Paper tray map for HCI-Alias = HCI".

Example Configuration

LaserJet IIIsi / 4si

- • UPPER TRAY contains paper for job separation.
- • HCI TRAY contains white paper.
- - This configuration provides 500 sheets in the upper tray and 1500 sheets in the HCI tray. To match this configuration on the D640, set up the D640 as follows:
- • TRAY1 contains paper for job separation.
- • HCI contains white paper.
- • Set HCI-Alias = tray2.
- - This configuration provides 500 sheets in tray1 and 3000 sheets in the HCI. You could also load paper for job separation in tray2 and tray3 to increase capacity to 1500 sheets.

If HCI-Alias is set to HCI, the values shown below in Table -6-1, "Paper tray map for HCI-Alias = HCI" are correct. If HCI-Alias is set to tray2, then you can send a job to either a 4si or a D640.

Table 6-1   Paper tray map for HCI-Alias = HCI

IIIsi, 4si	D640	5si
upper tray	upper tray (tray1)	upper drawer (tray2)
lower tray	middle tray (tray2)	lower drawer (tray3)
n/a	High Capacity Input	High Capacity Input
n/a	lower drawer (tray3)	fold out tray (tray1)

You can also set the default paper tray (used if there is no paper size or paper source command embedded in the print job) from the Control Panel. Use the intray setting in the Printing Menu.

Using the LaserJet 5Si Driver

The D640 printer can be used with a LaserJet 5Si printer driver, but there are many differences. For example:

- The input tray selection is different. See Table 6-1 above.
- The D640 printer does not support media type selection.
- The LaserJet 5Si does not support font cartridges.

Advanced Topics

Using Virtual Font Cartridges

Each of the D640 internal fonts is almost identical to those used in the LaserJet 4si. Some typefaces, treatments, and symbol sets are slightly different, due to advances in font technology since the development of the 4si. For example, if you print a very large question mark on each machine, you may notice differences in the shape.

All of the font sets from all of the 4si font cartridges sold by Hewlett-Packard are stored on the D640's internal hard disk drive as *virtual font cartridge*s. You select the virtual font cartridge by the Control Panel vcartridge1 and vcartridge2 settings (see "Virtual Font Cartridges" on page 2-20). The font names are comparable to the actual physical cartridge.

Table 6-2   Virtual Font Cartridges

Typeface and Treatment	IIISi	4si	C40D	D640
Line Printer Med.	bitmap	bitmap	bitmap	bitmap
Courier Med., Italic, Bold, Bold Italic	bitmap	Intellifont	Intellifont	Intellifont
Letter Gothic Med., Italic, Bold	nr	Intellifont	Intellifont	Intellifont
Arial Med., Italic, Bold, Bold Italic	nr	TrueType	TrueType	TrueType
Symbol Med.	nr	TrueType	TrueType	TrueType
Times New Roman Med., Italic, Bold, Bold Italic	nr	TrueType	TrueType	TrueType
Wingdings Med.	nr	TrueType	TrueType	TrueType
Albertus ExtraBold	nr	Intellifont	Intellifont	Intellifont
Albertus Med.	nr	Intellifont	Intellifont	Intellifont
Antique Olive Med., Italic, Bold	nr	Intellifont	Intellifont	Intellifont
CG Omega Med., Italic, Bold, Bold Italic	nr	Intellifont	Intellifont	Intellifont
CG Times Med., Italic, Bold, Bold Italic	Intellifont	Intellifont	Intellifont	Intellifont
Clarendon Condensed Bold	nr	Intellifont	Intellifont	Intellifont
Coronet	nr	Intellifont	Intellifont	Intellifont
Garamond Antiqua	nr	Intellifont	Intellifont	Intellifont
Garamond Halbfett	nr	Intellifont	Intellifont	Intellifont
Garamond Kursiv	nr	Intellifont	Intellifont	Intellifont
Garamond Kursiv Halbfett	nr	Intellifont	Intellifont	Intellifont
Marigold.	nr	Intellifont	Intellifont	Intellifont
Univers Condensed Med., Italic, Bold, Bold Italic	Intellifont	Intellifont	Intellifont	Intellifont
Univers Med., Italic, Bold, Bold Italic	Intellifont	Intellifont	Intellifont	Intellifont
ITC Zapf Dingbats	Intellifont	nr	nr	nr[1]
1. ITC Zapf Dingbats are available on the D640 Decorative Words I built-in cartridge.				

A

Printer Messages

Printer Initialization Failure

In the unlikely event that the printer does not start correctly, follow these steps:

1. The printer may self-diagnose the problem and display the message as shown in Figure A-2, on page A-2.
2. Write down the error code and message that appears on the Control Panel.
3. Refer to "Call Engineer error messages and codes" on page A-9 to determine the meaning of the error code.
4. If the error code calls attention to a specific physical component or location on the printer, check the area specified and correct the problem. If you can, print a test pattern, described in "Maintaining Print Quality" on page 6-1.
5. If you cannot resolve the problem, call your service representative, or refer to "Where To Call For Help" on page F-1 for the telephone number of your nearest Hewlett-Packard service representative. Be prepared to give the service representative the error code and any messages that appear on the Control Panel to assist in trouble-shooting.

Printer Reset

You can reset the printer without powering it off and on. This may be necessary if the printer is stopped and the Control Panel does not respond.

To perform a printer reset, press function buttons 1, 3, and 5 (shown in Figure A-1 below) at the same time and release them. If the display goes blank and then returns in a few seconds, the reset worked. If the display does not go blank, then power off the printer by moving the main power switch to the OFF position. Wait 20 seconds and power the printer on. See "Powering On the Printer" on page 1-18 and Figure 1-10.
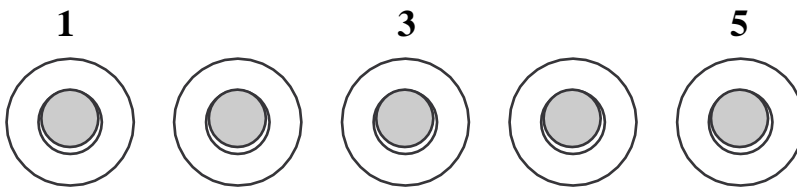
1   **3**   **5**

Figure A-1   Press buttons to reset

Printer Messages

This appendix provides information about messages displayed on the printer's Control Panel. There are several types of messages:

- *Status messages* are reports about what the printer is doing and do not require any action. Table A-1 lists these messages.

- *Warning messages* notify you when the life of a consumable is nearly over. Replace the consumable when convenient. Table A-2 lists these messages and directs you to the replacement procedure in this manual.

- *Paper jam messages* occur when paper jams while moving along the printer's paper path. Table A-3 lists these messages and directs you to the paper jam removal section in this manual.

- *Error messages* indicate conditions that stop or prevent printing until the error is corrected. Table A-4 lists these messages and directs you to the replacement procedure in this manual.

- *Call Engineer* error messages indicate conditions that may require a service representative to resolve. In some cases, you may be able to resolve these problems yourself, so refer to Table A-5 to interpret these error messages. This table includes corrective actions for each message.

Status Messages

The following is a list of normal status messages that will appear from time to time as you use the D640. These messages provide status only and do not require any action by the operator. The intention of these messages is to provide current printer status.

Table A-1   Status messages

Message	Explanation
Printer Initializing	The printer is performing self-diagnostics.
Printer warming up	The printer is heating the fuser unit for operation.
Ready -- free	The printer is powered on and ready to use. No data has been received by the printer yet.
Ready -- printing	The printer is currently feeding paper and physically imprinting the image on the paper.
Ready -- waiting	The printer has received partial data and is waiting for the host send additional data.
Ready -- imaging	The printer has received data and is building the page image.
Ready -- processing	The printer is receiving data from the host.
Error mask on	The printer is operating with an error condition disabled. This can only be set or reset by your service representative.
Menu Locked	The menu has either been locked from a print job or the printer is processing a job and menu changes cannot be made.

Print Messages

Warning Messages

The following warning messages indicate conditions that require operator intervention, such as when the output tray fills up with paper, or when a particular consumable has reached the end of its life. The "end life" message remains until you replace the consumable. Always replace the consumable as soon as possible to maintain the best print quality.

⚠ **Caution** If you ignore the "Toner low" message, eventually the printer will shut down with the "Toner empty" message to prevent mechanical damage.

⚠ **Caution** If you ignore the "Developer end-life" message, eventually the printer will shut down with the "Developer end-life/Change developer at once" message to prevent mechanical damage.

Table A-2   Warning messages

Message	Explanation	Action
Output tray full	The printer's output tray is full.	Remove paper from tray.
Paper-size mismatch	The requested paper size is not available.	Load correct paper size.
Toner low	The supply of toner in the toner hopper is low.	Add toner. See "Replacing Developer" on page 4-9.
Developer end-life	The developer has reached the end of its useful life and needs replacement.	Replace developer. See "Discharging Developer" on page 4-9.
Drum end-life (drum area blinks)	The drum has reached the end of its useful life and needs replacement.	See "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18.
Fuser end-life (fuser area blinks)	The fuser has reached the end of its useful life and needs replacement.	See "Removing the Fuser" on page 4-30.
Tray 1 rollers end-life	The indicated pick roller has reached the end of its useful life and needs replacement.	See "Printer Pick Roller Kit - Replacing the Tray Pick Rollers" on page 4-33.
Tray 2 rollers end-life		
Tray 3 rollers end-life		
HCI rollers end-life	The HCI pick rollers have reached the end of its useful life and need replacement.	See "HCI Pick Roller Kit - Replacing the HCI Pick Rollers" on page 4-42.

Paper Jam Messages

Paper jam messages appear when there is a problem moving paper through the printer. One or more sheets of paper may be jammed. Refer to the Control Panel's indication of the jam location and check Table A-3 below. If the jam message does not go away after removing the jammed paper, check the area again for stray paper fragments, and check the Control Panel. There may be more paper jammed at other locations in the paper path.

WARNING!   When you remove jammed paper, avoid contact with the paper sensors in the paper feed path. These small black plastic actuator levers are easily damaged.

Table A-3   Paper jams and their remedies

Paper Jam Messages	Remedy	Refer to page
Loading Jams		
TRAY1 pick error TRAY2 pick error TRAY3 pick error	Remove tray (1, 2, or 3), remove paper jam from paper entry area and/or within the tray.	page 3-24
Feed path jam 1	Open the front door, lower transfer assembly, rotate knob 1 counterclockwise and knob 2 clockwise to free paper, remove jammed paper.	page 3-26
Feed path jam 2	Open the lower right cover, remove jammed paper.	page 3-26
HCI jam 1	Open HCI, lower paper, remove jammed paper.	page 3-32
HCI jam 2	Pull HCI away from printer, remove jammed paper.	page 3-34
HCI jam 3	Pull HCI away from printer, remove jammed paper.	page 3-34
HCI jam 4	Open the front door, lower transfer assembly, rotate knob 1 counterclockwise and knob 2 clockwise to free paper, remove jammed paper.	page 3-26
Paper Path Jams		
Fusing unit jam 1 Fusing unit jam 2	Open the front door, lower transfer assembly, open lever 4, push decurler lever down, remove jammed paper to right.	page 3-36
Duplex path jam 1 Duplex path jam 2	Open the front door, raise lever 6, and remove jammed paper. You may need to turn duplex roller knob to release the paper.	page 3-38
Print unit path jam	(Reversing unit area jam) Open the front door, open lever 4, hold lever 5 away from the fuser, and remove jammed paper. You may need to turn duplex roller knob to release the paper.	page 3-40

Print Messages

Paper Jam Messages	Remedy	Refer to page
Paper Ejection Jams		
Ejection unit jam 1 Ejection unit jam 2	Raise the paper ejection cover and remove jammed paper.	page 3-43
HCO jam 1 HCO jam 2	Open the HCO door, rotate roller knob 1 to free paper, then lift levers to remove paper.	page 3-45

Error Messages

When any of the following error messages appear on the first line of the display screen, the printer suspends printing until the error is corrected.

Table A-4   Error messages

Message	Explanation	Action
Ejection unit cover open	The ejection unit cover (on top of the printer) is open or not completely closed.	Close the ejection cover until it clicks shut.
Front Door open	The front door is open or not completely closed.	Close the front door until it latches.
Upper right cover open	The upper right cover is open or not completely closed.	Close the upper right cover until it latches.
Lower right cover open	The lower right cover is open or not completely closed.	Close the lower right cover until it latches.
HCI cover open	The HCI door is open or not completely closed.	Close the HCI door until it latches.
Fuser interlock	The fuser is not seated properly.	Remove and reinsert the fuser into the printer. See "Removing the Fuser" on page 4-30.
Drum unit interlock	The drum is not seated properly.	Remove and reinsert the drum into the printer. See "Removing the Drum" on page 4-21.
Developer collector not in (During developer replacement only)	The developer collector bottle is not seated properly or is missing.	Remove and reinsert the developer collector bottle into the printer. See "Installing Developer Collector Bottle" on page 4-16.
Toner empty	The toner hopper is out of toner.	Refer to "Replacing Toner" on page 4-4 and install toner.

Print Messages

Call Engineer Error Messages and Codes

Call Engineer error messages stop the printer and take it Offline. Some of these errors can be corrected by the user, but most require a visit from your service representative.
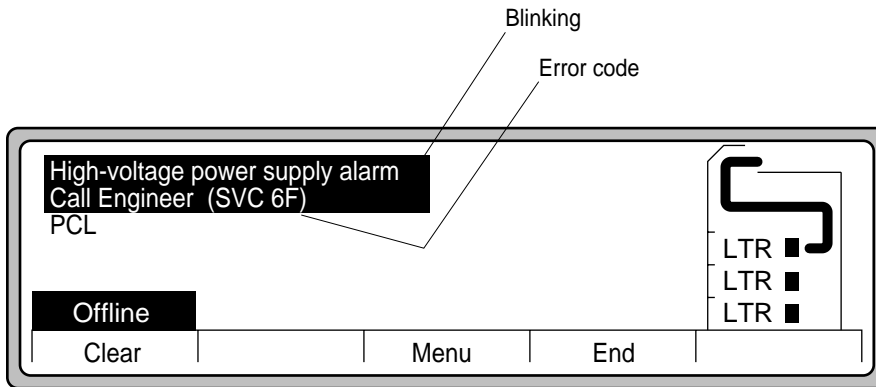

Figure A-2   Call Engineer (Service Representative)

Before calling the service representative, follow these steps:

1. Try clearing the error by pressing Clear.
2. If the error condition persists, look up the error in "Call Engineer error messages and codes" on page A-9 and follow the instructions.
3. If the error condition persists, power the printer off and on to clear the error.
4. If the error condition persists, call your local service representative.

Table A-5   Call Engineer error messages and codes

Error Message	Code	Description	Action
Pick motor 1 alarm	SVC 08	The upper tray's pick motor (tray 1) did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative.
Pick motor 2 alarm	SVC 09	The middle tray's pick motor (tray 2) did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative
Pick motor 3 alarm	SVC 0A	The lower tray's pick motor (tray 3) did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative.
Switch-back motor alarm	SVC 0B	The switch-back motor (just left of the fuser) did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative.
Feed motor alarm	SVC 0D	The feed motor (located on the bottom) did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative.
Stacker select alarm	SVC 0E	The solenoid switch in the printer which controls paper output going to the HCO did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative.
Duplex motor alarm	SVC 0F	The duplex motor did not work correctly and may need to be replaced.	Try clearing the error by pressing Clear. If the error condition persists, call your local service representative.
Fuser alarm (time-out)	SVC 27	The fuser unit did not heat-up to the normal fuser temperature within the allotted warm up time.	Confirm that the voltage rating on the fuser matches the voltage rating of the printer. Verify that the fuser unit is correctly installed and that all printer doors and covers are closed, then press Clear. If the error message persists, refer to "Removing the Fuser" on page 4-30 and replace the fuser. If this error code returns, call your service representative.
Fuser temperature high alarm	SVC 28	The fuser unit temperature is above a normal level.	Verify that the fuser unit is correctly installed and that all printer doors and covers are closed, then press Clear. If the error message persists, refer to "Removing the Fuser" on page 4-30 and replace the fuser. If this error code returns, call your service representative.

Print Messages

Error Message	Code	Description	Action
Fuser temperature low alarm	SVC 29	The fuser unit temperature is below a normal level.	Verify that the fuser unit is correctly installed and that all printer doors and covers are closed. Press returns, call from the front panel. If the error message persists, refer to "Removing the Fuser" on page 4-30 and replace the fuser. If this error code returns, call your service representative.
Toner motor alarm	SVC 50	The motor which drops toner into the printer is not working correctly and may need to be replaced.	Open the upper right cover and check that the connector at the right side of the toner hopper is connected. If it is connected properly, call your service representative.
Toner screw rotation alarm	SVC 51	The waste toner auger is not working correctly and may need to be replaced.	To fix this error call your service representative.
Developer discharge alarm	SVC52	During the developer replacement procedure the old developer might not be evacuated properly. The problem could be mechanical or electrical.	To fix this error, call your service representative.
Developer shutter alarm	SVC54	During the developer replacement procedure, the shutter releasing the old developer did not open correctly. The problem could be mechanical or electrical.	To fix this error, call your service representative.
Toner auto-adjustment alarm	SVC 56	After the developer was replaced, the automatic toner calibration could not be done correctly. The problem could be mechanical or electrical.	Purge developer and try again with a new bottle. If this error code persists, call your service representative.
Toner density high alarm	SVC 57	The concentration of toner in the developer unit is above the normal range.	Purge developer and try again with a new bottle. If this error code persists, call your service representative.
Toner density low alarm	SVC 58	The concentration of toner in the developer unit is below the normal range.	Purge developer and try again with a new bottle. If this error code persists, call your service representative.
Toner density voltage high alarm	SVC 59	The reference voltage used to measure the toner concentration in the developer unit is above the normal range.	Purge developer and try again with a new bottle. If this error code persists, call your service representative.

Error Message	Code	Description	Action
Toner density voltage low alarm	SVC 5A	The reference voltage used to measure the toner concentration in the developer unit is below the normal range.	Purge developer and try again with a new bottle. If this error code persists, call your service representative.
Toner hopper alarm	SVC 5B	The hopper which holds the toner is not working correctly, or there is no toner in the hopper. This error will occur if you continue to clear a Toner Empty condition.	Confirm that the plastic protective cover on the right side of the toner hopper was removed (see page 2-47 of the *D640 Installation Manual*). If you have recently added toner, call your service representative. If you have not recently added toner, try adding toner. If the toner hopper is full, call your service representative. If the toner hopper was empty, cycle power after adding toner.
Main motor alarm	SVC 69	The main motor did not reach normal rotation speed.	Verify that the drum and fuser unit is correctly installed and that all printer doors and covers are closed, then press Clear. If this error code returns, call your service representative.
High-voltage power supply alarm	SVC 6F	The high voltage power supply is not working correctly.	Clean the transfer assembly charger (see "Transfer Assembly Guide" on page 5-9) and try to print again. If the error persists, try replacing the transfer unit (see "Removing the Transfer Assembly" on page 4-19). If the error still persists, try replacing the drum unit (see "Drum Kit - Replacing Drum and Transfer Assembly" on page 4-18). If the error persists after replacing the drum unit, call your service representative.
Spindle motor alarm	SVC 79	The motor inside the optical unit did not reach the normal rotation speed.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
BD1 alarm	SVC 7A	The BD (beam detection) signal number 1, inside the optical unit is not working correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
BD2 alarm	SVC 7B	The BD (beam detection) signal number 2, inside the optical unit is not working correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
BD speed high alarm	SVC 7C	The BD (beam detection) cycle, inside the optical unit is above normal speed.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.

Print Messages

Error Message	Code	Description	Action
BD speed low alarm	SVC 7D	The BD (beam detection) cycle, inside the optical unit is below normal speed.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
LD alarm	SVC 7E	The LD (laser diode), inside the optical unit is not working correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
In-frame fan alarm 1	SVC A0	Fan number 1 (inside the optical unit) did not rotate correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
In-frame fan alarm 2	SVC A1	Fan number 2 (upper left rear side) did not rotate correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
In-frame fan alarm 6	SVC A3	Fan number 6 (fan for cooling the main controller board) did not rotate correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
In-frame fan alarm 7	SVC A4	Fan number 7 (lower left rear side) did not rotate correctly.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
Watchdog timer alarm (master)	SVC B0	The timer on the mechanism controller board was not reset by the "Master CPU". Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
Watchdog timer alarm (slave)	SVC B1	The timer on the mechanism controller board was not reset by the "Slave CPU". Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
Communication alarm	SVC B3	The communication between the two processors on the mechanism controller board was disabled.	Turn the printer off for at least 30 seconds, and turn the printer on again. This error is not related to the serial or parallel ports. If this error code returns, call your service representative.

Error Message	Code	Description	Action
EEPROM alarm	SVC B4	The mechanism controller detected a problem with the NVRAM (EEPROM).	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
VS alarm	SVC B5	A return signal from the main controller was not received by the mechanism controller during the normal response time.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
Prepick alarm	SVC B6	A return signal from the main controller was not received by the mechanism controller during the normal response time.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
VR alarm (time-out)	SVC B7	A return signal from the mechanism controller was not received during the normal response time.	Turn the printer off for at least 30 seconds, and turn the printer on again. If this error code returns, call your service representative.
HCI table decent alarm	SVC C4	The HCI encountered an error when the HCI's table was being lowered.	Refer to "Clearing HCI Jams" on page 3-32 to locate and remove any paper that may be jammed inside the HCI. Look for any paper stuck at the lower left side as you open the HCI's door. Reattach the HCI to the printer and close the HCI's door. Press Clear. If this error code returns, call your service representative.
HCI table ascent alarm	SVC C5	The HCI encountered an error when the HCI's table was being raised.	Refer to "Clearing HCI Jams" on page 3-32 to locate and remove any paper that may be jammed inside the HCI, in particular look for any paper stuck at the lower left side as you open the HCI's door. Reattach the HCI to the printer and close the HCI's door. Press Clear. If this error code returns, call your service representative.
HCO stacker alarm	SVC D8	This code indicates an error with the HCO.	Verify the following: (1) the HCO interface cable is connected to the printer, (2) the HCO's power cable is plugged into an working AC outlet, and (3) the HCO's power switch is turned on. (Refer to the *D640 Installation Manual* for this information). Press Clear. If this error code returns, call your service representative. Disconnect the HCO interface cable and power the printer off and on to continue using the printer without the HCO.

Print Messages

B

Host Serial and Parallel Interface Configuration

Introduction

The D640 printer is equipped with two standard communication interfaces used to connect to a host computer:

- Bitronics (Parallel) interface
- RS-232C serial interface

With the addition of an HP JetDirect EX interface, purchased separately, you can use the printer on a local area network (LAN). The JetDirect EX interface connects the network to the Bitronics interface of the printer. (If you purchased the HP JetDirect EX interface, you'll find detailed directions included in the *JetDirect EX Configuration Guide*.)

Parallel connector
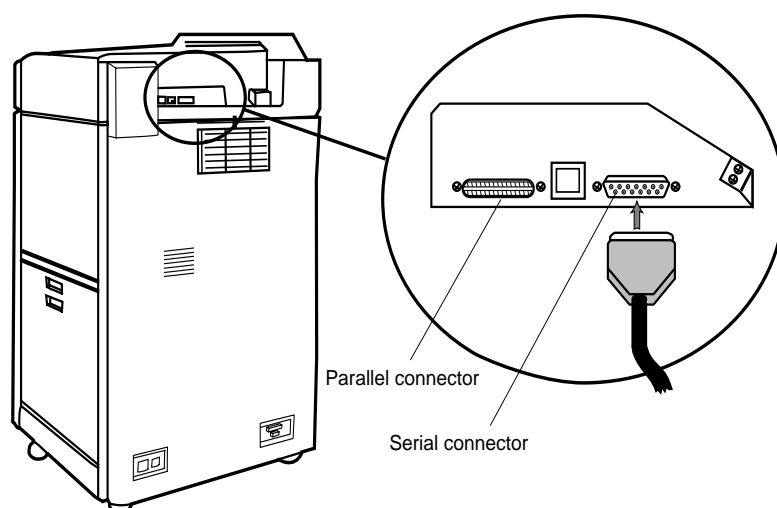
Serial connector

Figure B-1   Standard Signal Interface Connectors

The standard parallel (IEEE 1284C) and serial (RS-232C) communication interface connectors are located on the back of the printer, as shown in Figure B-1. The IEEE 1284C connector is at the upper back of the printer; this connector is smaller than the usual (Centronics) parallel

connector. This is a "C" type Bitronics connection. Hewlett-Packard has included an "A-to-C" parallel printer cable with the printer. The RS-232C connector is the standard DB25 pin connector, located near the top center of the printer.

You can get more information about HP's compliance with the IEEE 1284 Standard from the HP FIRST fax retrieval service at 1-800-333-1917 in the USA and Canada. Ask for document number 1951. The same document is also available by ftp from:

ftp://ftp-boi.external.hp.com/pub/printers/laserjet/doc/bp02455.asc

Using the Serial Interface

Use the serial interface when you need to locate the printer at some distance (up to 50 feet (15 meters)) from the host computer. You can use either an RS-232C or an RS-422A cable.

Table B-1 lists RS-232C and RS-422A pin assignments and signal descriptions. Those pins not listed in the table are not used.

Table B-1   Pin assignments for a serial cable

Pin Number	Description	RS-232	RS-422	I/O
1	Protective ground.	*	*	-
2	Transmitted data (data from printer).	*	n/a	Output
3	Received data (received by printer).	*	n/a	Input
3 (RS-422)	Received data inverted (RDA) (received by printer).	n/a	*	Input
4	Request to send. This signal is HIGH when the printer is on.	*	n/a	Output
7	Signal ground.	*	*	
9 (RS-422)	Send data inverted (SDA).	n/a	*	Output
10 (RS-422)	Send data non-inverted (SDB).	n/a	*	Output
14	Must be connected to ground (7) to select RS-422 mode (SDB).	n/a	*	Input
18 (RS-422)	Receive data non-inverted (RDB).	n/a	*	Input
20	Data terminal ready	*	n/a	Output
* = valid signal n/a = unimplemented				

The serial interface is accessible through a 25-pin female connector (Figure B-2) at the back of the printer.

The interface can be configured to operate in an RS-232 or RS-422 configuration. Use the control panel to set the configuration.

If you are set up for RS-232 operation, you can convert to RS-422 operation by shorting pin 14 of the interface to ground (pin 7).
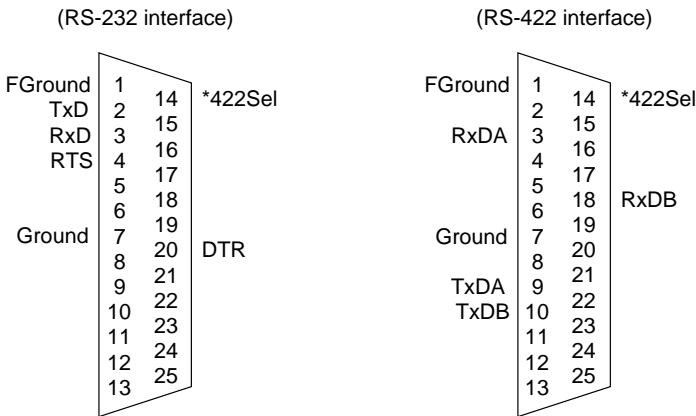
Figure B-2   RS-232 and RS-422 Host Interface Connectors pin diagram

Interface
Configuration

Using the Parallel Interface

The parallel interface uses a 36-pin connector (Figure B-3) at the back of the printer. It is an IEEE 1284 Type C parallel connection.

Signal names on the following connector pin assignment diagram relate to Centronics operating mode.

Busy	1	19	Ground
Select	2	20	Ground
Ack	3	21	Ground
Fault	4	22	Ground
P error	5	23	Ground
Data 1	6	24	Ground
Data 2	7	25	Ground
Data 3	8	26	Ground
Data 4	9	27	Ground
Data 5	10	28	Ground
Data 6	11	29	Ground
Data 7	12	30	Ground
Data 8	13	31	Ground
Init	14	32	Ground
Strobe	15	33	Ground
Select in	16	34	Ground
Auto Feed	17	35	Ground
NC	18	36	Peripheral logic hi
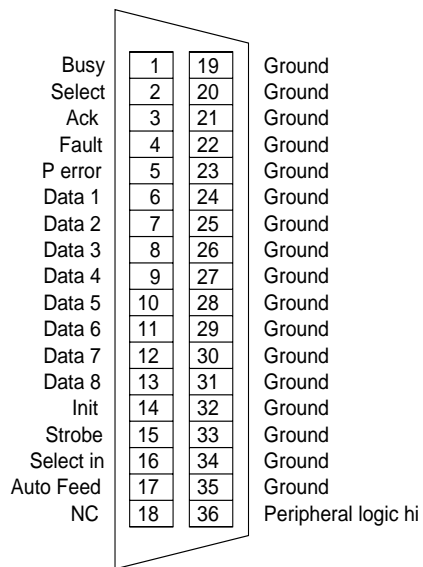
Figure B-3   Parallel Host Interface Connector pin diagram

C

Specifications and Regulatory Information

Introduction

This chapter provides specifications, safety compliance, options, and printing paper for the HP5000 family D640 cut sheet printer and accessories.

Printer Specifications

This section provides general, print speed, physical, electrical, and environmental specifications as well as safety standards.

Table C-1 lists general specifications for your D640 printer.

Table C-1   Printer general specifications

Item		Specifications
Printing technology		Laser diode, electro-photographic
Printing speed		40 ppm (Letter and A4 landscape)
Paper	Size	Letter, Legal, Ledger. Executive, A3, A4, A5, B4 (JIS), B5 (JIS)
	Type	Plain Paper, Label paper, Recycle paper, Transparency paper, Bond paper, Pre-punched paper
Resolution		600×600 dpi
Paper capacity		• 3 trays $\times$ 500 sheets (64 g/m^2) standard
		• 1 tray x 500 sheets (64 g/m^2) optional custom tray
		• 3,000 sheets (A4, Letter size only) optional High Capacity Input (HCI)
Stacker capacity		• 500 sheets (64 g/m^2) face down tray
		• 2,000 sheets optional High-Capacity Output
Emulation		PCL, HEX, optional PostScript (PS)
Interface		2 ports (Serial RS232C/422A and Parallel IEEE 1284C)
Warm-up time		Less than 150 seconds
First print time		Less than 18 seconds
Resident RAM		16 MB (Expandable to 64 MB)
Resident font		Bitmap font: 1, Outline fonts: 45

Table C-2 lists D640 printer print speeds for various paper sizes.

Table C-2   Printer print speed specifications

Paper Size	From Tray 1, 2, 3 or HCI	
	Simplex	Duplex
Letter	40	40
Legal	25	15
Ledger	21	15
Executive	40	40
A3	21	15
A4	40	40
A5	40	40
B4 (JIS)	24	24
B5 (JIS)	30	30
Custom (width = 120mm to 297mm, length = 182mm to 215.9mm)	40	40
Custom (width = 120mm to 297mm, length = 215.9mm to 431.8mm)	21	15
Notes: 1. Unit of measure: Images Per Minute (IPM) 2. In Simplex and Duplex Modes, all the speeds have ±5% tolerance.		

Table C-3 lists the printer's physical specifications.

Table C-3   Printer physical specifications

Item	Specification			
Dimensions	Width		Depth	Height
	570 mm (22.5 in)		630 mm (24.8 in)	1,030 mm (40.6 in)
Weight	Approximately 130 kg			
Service area	Front	Back	Left	Right
	650 mm (25.6 in)	850 mm (33.5 in)	850 mm (33.5 in)	850 mm (33.5 in)

Specifications

Figure C-1 illustrates the physical specifications and Figure C-2 illustrates the required printer service area dimensions.

40.5 in.
(1030 mm)

23.0 in.
(585 mm)

1.38 in
(35 mm)

25.2 in.
(640 mm)
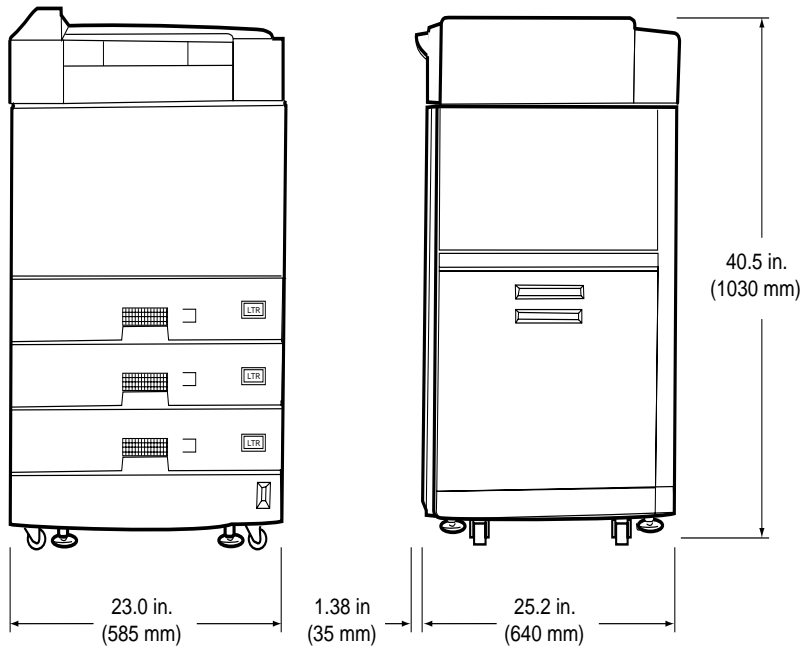
Figure C-1   D640 Printer Physical Dimensions
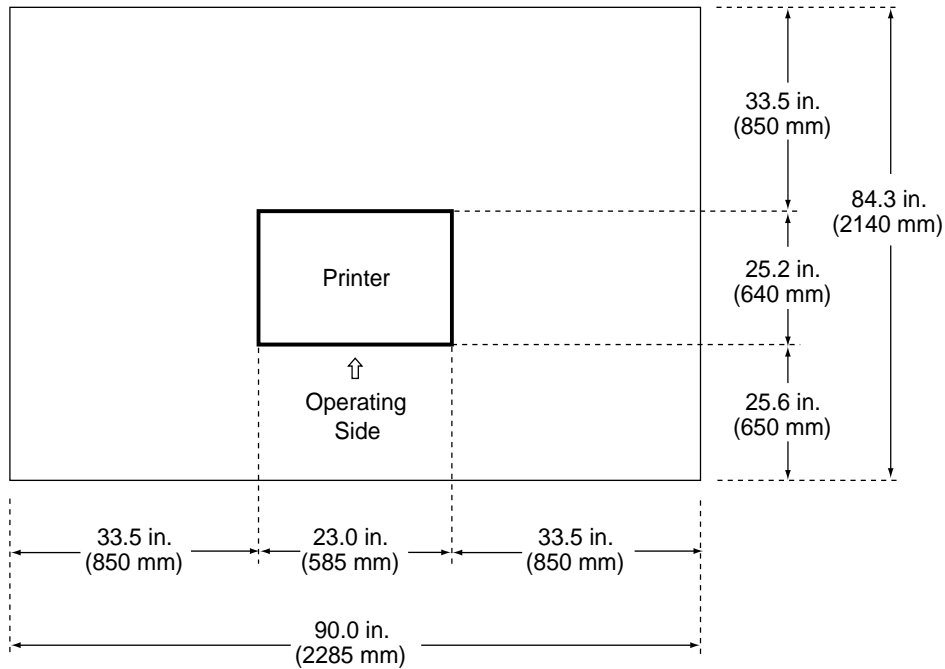
Figure C-2   D640 Printer required service area dimensions

Table C-4   Printer electrical specifications

Item		Specifications
Input power	Voltage	120 to 127 VAC ± 10%, 12A 200 to 240 VAC ± 10% 7A
	Phase	Single-phase
	Frequency	50/60Hz ± 5%
Power consumption		1,300 VA or less than during operating
Heat production		894 kcal per hour (3550 Btu per hour)
In-rush current		Up to 100 amps

Note   If the printer is connected to a line conditioner, make sure the line conditioner can support the in-rush current requirement for the printer.

Specifications

Table C-5   Printer environmental specifications

Item	Specification	
Ambient Conditions	**Operating**	**Non-operating**
Temperature	15 to 35°C	0 to 35°C
Humidity	20 to 80% RH (no condensation) 40 to 60% RH optimal	20 to 80% RH (no condensation) 40 to 60% RH optimal
Maximum wetbulb temperature	29°C (no condensation)	
Temperature and humidity gradients	15 °C per hour or less and 30% RH per day or less (no condensation)	
Acoustic noise	See Table C-15 for details.	
Dust	0.15 mg./m^3 (stearic acid)	
Ozone emission	0.1 PPM or less	

Best Printing Area Specifications

Place your printed image in an area within a 1/6 inch (4.23 mm) border. Printing outside of this boundary may be of lower quality.

Figure C-3 shows the best printing area.
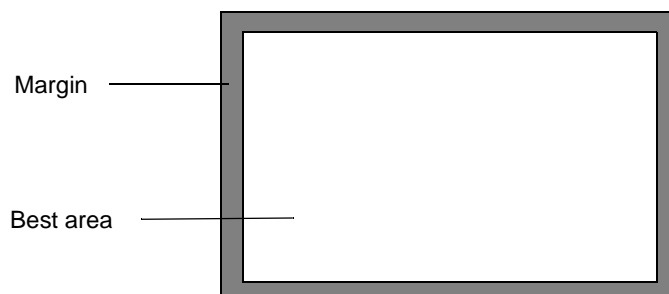
Figure C-3   Best printing area

If data is printed outside the best printing area, you may obtain poor print quality.

D640 Optional Accessories

Table C-6 lists printer options and their associated specifications.

Table C-6   D640 printer options and specifications summary

Item	Specification	Part Number
High-Capacity Input (HCI)	3,000 sheets (20 lbs; 64 g/m^2)	C5621A (Letter) C5622A (A4)
High-Capacity Output (HCO)	2,000 sheets (20 lbs; 64 g/m^2)	C5623A (120 V) C5624A (200 - 240)
Custom paper tray	500 sheets (at 75g/m2)	C5634A
Standard paper tray	500 sheets (at 75g/m2	C5625A
PostScript upgrade	PostScript Level 2 (includes 16 MB memory)	C5630A
16 MB Memory Kit	16 MB SIMM (maximum 3 SIMMs)	C5635A

High Capacity Input (HCI) Specifications

The C5621A and C5622A are user-installable high capacity input (HCI) paper hoppers. C5621A uses Letter size paper only and the C5622A uses A4 size paper only.

Figure C-4 illustrates the C5621A/C5622A high capacity input hopper.
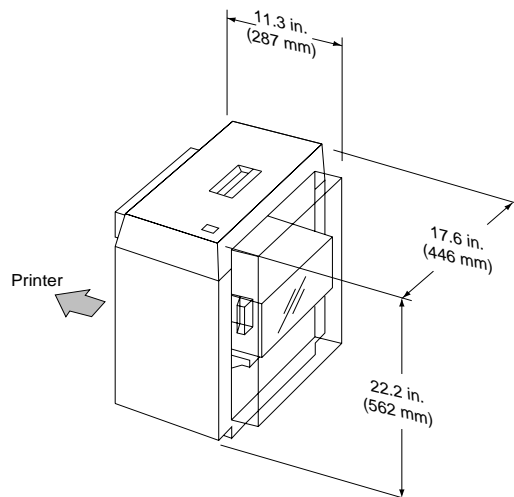
Figure C-4   High Capacity Input physical dimensions

Specifications

High Capacity Input (HCI) Specifications

Table C-7 lists the HCI paper related specifications.

Table C-7   HCI paper handling specifications

Item		Specifications
Processing speed		40 ppm (C5621A: Letter landscape, C5622A: A4 landscape)
Paper	Size	C5621A: Letter / C5622A: A4
	Type	Plain paper, Label paper, Bond paper, Pre-punched paper, 64 to 90g/m2
Paper capacity		3,000 sheets (75g/ m2)

Table C-8 lists the HCI physical dimensions, unit weight, and required service area dimensions and Figure C-4 illustrates these dimensions. Figure C-5 illustrates the HCI service area requirements.

Table C-8   HCI physical specifications

Item	Specification	
Dimensions	Width	11.3 in (287 mm)
	Depth	17.6 in (446 mm)
	Height	22.2 in (562 mm)
Weight	About 38 lbs (17 kg)	
Service area	Front	25.6 in (650 mm)
	Back	33.5 in (850 mm)
	Right	33.5 in (850 mm)
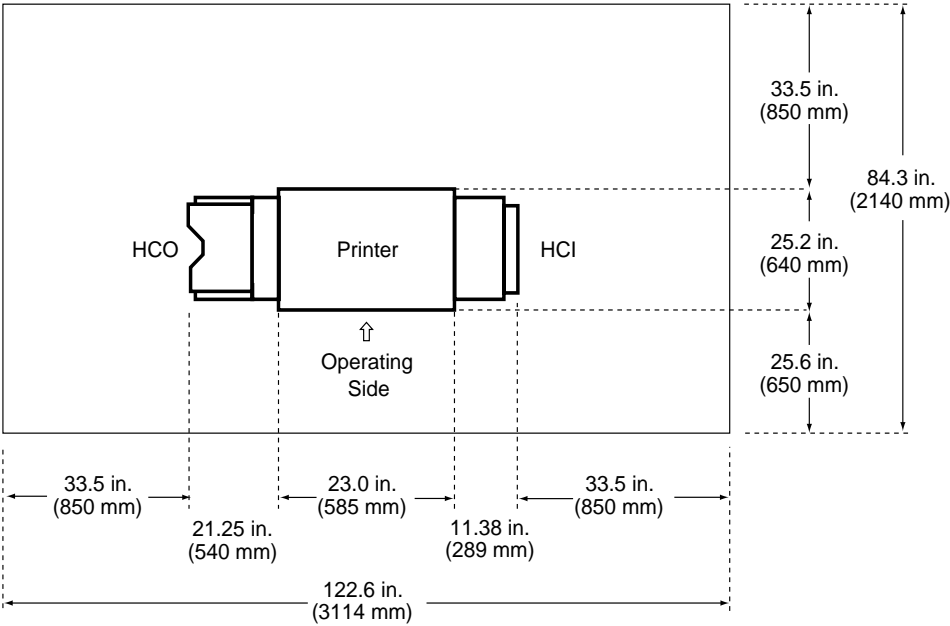
Figure C-5   HCO (left), D640 Printer (center), and HCI (right) required service area dimensions

HCI Electrical Specifications

Table C-9 lists the HCI electrical specifications.

Table C-9   HCI electrical specifications

Item	Specification
Input power	24VDC, supplied from D640 printer
Power consumption	30VA or less during operating

Specifications

High Capacity Output (HCO) Specifications

Figure C-6 shows the user-installable high capacity output (HCO). Model number C5623A is the 120VAC version, and model number C5624A is the 240VAC version. The HCO can stack up to 2000 sheets of paper.
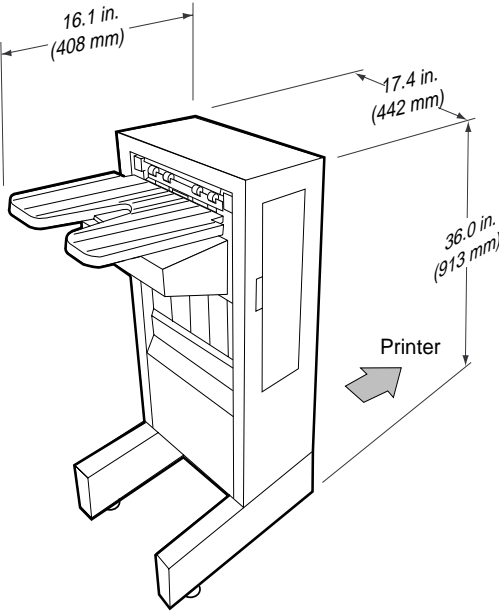
Figure C-6   High Capacity Output physical dimensions

HCO Paper Handling Specifications

Table C-10 lists the HCO paper handling specifications.

Table C-10   HCO paper handling specifications

Item		Specifications
Processing speed		40 ppm
Paper	Size	Letter, Legal, Ledger, Executive, A3, A4, A5, B4(JIS), B5(ISO)
	Type	Plain paper, Label paper, Transparency, Bond paper, Pre-punched paper, 64 to 90g/m2
Paper capacity		2,000 sheets (75g/ m2)

HCO Physical Specifications

Table C-11 lists the HCO physical dimensions, unit weight, and also provides the required service access area dimensions.

Figure C-6 illustrates these specifications.

Table C-11   HCO physical specifications

Item	Specification	
Dimensions	Width	16.1 in, 408 mm
	Depth	17.4 in (446 mm)
	Height	36.0 in, 913 mm
Weight	About 70 lbs (32 kg)	
Service area	Front	25.6 in (650 mm)
	Back	33.5 in (850 mm)
	Right	33.5 in (850 mm)

HCO Electrical Specifications

Table C-12 lists the HCO electrical specifications.

Table C-12   HCO electrical specifications

Item	Specifications	
Input power	Voltage	100 to 120 VAC ± 10%, 200 to 240 VAC ± 10%
	Phase	Single-phase
	Frequency	50/60Hz
Power consumption	120 VA or less than during operating	
Heat production	83 kcal per hour	

HCO Environmental Specifications

Table C-13 lists the HCO environmental specifications.

Table C-13   HCO environmental specifications

Ambient Condition	Operating	Non-operating
Temperature	15 to 35 °C	0 to 35 °C
Humidity	20 to 80% RH (no condensation) 40 to 60% RH optimal	20 to 80% RH (no condensation) 40 to 60% RH optimal
Temperature and humidity gradients	15 °C per hour or less and 30% RH per day or less (no condensation)	

Printer Custom Paper Tray Specifications

The C5634A custom paper tray is a user-installable, optional paper tray compatible and switchable with any of the standard printer paper trays. The custom paper tray can hold up to 500 sheets of paper, as listed in the Table C-14 specifications.

Table C-14   Custom paper tray physical specifications

	Minimum	Maximum
Width	120 mm	297mm
Length	182 mm	431.8 mm

The paper guides in the custom paper tray are adjustable, and it also supports the following standard media sizes: Letter, Legal, Ledger, Executive, A3, A4, A5, B4 and B5.

PostScript Upgrade

The C5630A PostScript upgrade is a user-installable optional upgrade for PostScript Level 2 emulation.

You can add PostScript to your D640 printer with the C5630A PostScript upgrade. If you add PostScript, you must also install another 16 MB of printer memory (included with the C5630A PostScript upgrade kit).

Safety and Regulatory Information

This product was tested for conformance to various national and international regulations and standards. The scope of this regulatory testing includes electrical and mechanical safety, electromagnetic emissions, immunity, acoustics and hazardous materials.

When required, approvals are obtained from third party test agencies. Approval marks appear on the product label. In addition, various regulatory bodies require some information under the headings noted below.

FCC Statement (USA only)

This equipment has been tested and found to comply with the limits of a Class A digital device pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply within the Class A limits in part 15 of the FCC rules.

DOC Statement (Canada only)

This Class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Europe RFI Statement

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Specifications

Acoustics Emissions

Table C-15   Acoustic noise levels per ISO 9296, with HCI and HCO

Operation	Printer Only	With HCO and HCI	Power Save Mode
Bystander (while printing)	56 dB(A)	58 dB(A)	-
Bystander (in standby mode)	52 dB(A)	52 dB(A)	33 dB(A)
Sound Power (while printing)	7.4 bels(A)	7.7 bels(A)	-
Sound Power (in standby mode)	6.6 bels(A)	6.6 bels(A)	4.5 bels(A)

Data Communications (United Kingdom only)

Pursuant to Section 22 of Telecommunications Act of 1984, this product is approved for indirect connection to Public Telecommunications systems within the United Kingdom under the General Approval number NS/G/1234/J/100003.

Material Safety Data Sheets

Hewlett-Packard has Material Safety Data Sheets (MSDS) available for all chemicals associated with the printing process implemented by all HP products. Should your site require a Material Safety Data Sheet for an HP-supplied chemical in use at your site, please contact HP at 1-800-752-0900 in the US (or 613-820-6483 in Canada) or your local HP service office, and provide the following information:

- HP part or product number
- Chemical substance description
- Your name
- Company name
- Company address
- Telephone number
- FAX number, if the request if for a FAX copy

EPA Energy Star Computer Compliance

Your D640 printer is designed to conserve electricity by dropping from 165W while printing to under 45W when in the PowerSave mode. For maximum energy conservation, Hewlett-Packard recommends that the printer be turned off when it will not be used for more than a few days. With this new, power-saving design, your D640 printer qualifies for the U.S. Environmental Protection Agency's Energy Star Computer compliance.
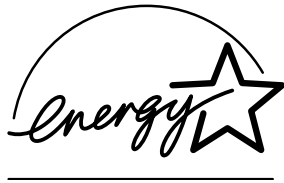
As an Energy Star partner, Hewlett-Packard Company has determined that this product meets Energy Star Guidelines for energy efficiency.

Safety Standards and General Considerations

This printer has been designed to conform to recognized technical standards, including the following national and international product safety standards and norms:

- CSA C22.2 No. 950
- EN 60950 (IEC 950)
- EN 60825 (IEC 825)
- UL 1950
- U.S. CDRH 21CFR Ch.1 Subch J

Any unauthorized removal of safety covers, manipulation of safety switches, and interference with the safety system is strictly prohibited. Such actions can cause personal injury and can damage the system. Also make sure that the operating and maintenance areas are not obstructed in any way.

Specifications

Laser Safety Standards

Printer Laser Equipment Compliance Label

This product is a Class I laser product.

The laser safety label is located on the top of the optical unit.

DANGER INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED.

AVOID DIRECT EXPOSURE TO BEAM

ATTENTION EXPOSITION AU LASER INVISIBLE SI OUVERT OU SI LE VERROUILLADE EST DEFECTUEUX EVITER L'EXPOSITION DIRECTE AU RAYON DE LASER.

VORSICHT UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEOFFNET UND SICHERHEITSVERRIEGELUNG UBERBRuCKT NICHT DEM STRAHL AUSSETZEN.

FARA Risk för stråining av osynilgt laserljus om såkerhetsorytare är ur funktion då tuckan öppnas.

Laser Safety Statement (USA Only)

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. This printer is certified as a "Class 1" laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

⚠ Caution   Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Safety Statement (Finland Only)

LASERTURVALLISUUS

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

HP5000 D640 laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle. Laitten turvallisuusluokka on määritetty standardin EN 60825 (1991) mukaisesti.

VAROITUS !

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARNING !

Om apparaten används på annat sätt an i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

HUOLTO

HP 5000 D640 kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota värianekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suoritta ilman erikoistyökaluja.

VARO !

Mikäli kirjoittimen suojakotelo avataan, olet alttina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

VARNING !

Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej stralen.

Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:

Aallonpituus 780 nm

Teho 5 mW

Luokan 3B laser

HP Declaration of Conformity

**HEWLETT®
PACKARD**

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's name: Hewlett-Packard Company

Manufacturer's address: 11000 Wolfe Road
Cupertino, California 95014, USA

declares that the product

    Product name: HP 5000 D640 cut sheet printer

    Model number: C5620B

    Product options: All

conforms to the following Product Specifications:

    Safety: IEC 950:1991 + A1, A2 / EN 60950:1992 + A1, A2
               IEC 825:1984 + A1 / EN 60825:1991 laser class 1
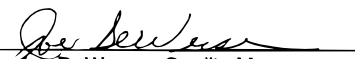
    EMC: CISPR 22: 1993 / EN 55022:1994 Class A
           EN 50082-1:1992
              IEC 801-2:1991 / prEN 55024-2 (1992) 4kV CD, 8kV AD
              IEC 801-3:1984 / prEN 55024-3 (1991) 3 V/m
              IEC 801-4:1988 / prEN 55024-4 (1992) 1 kV Power Lines
                                          0.5 kV Signal Lines

Supplementary Information:

    The product herewith complies with the requirements of the EMC Directive
(89/336/EEC) and the Low Voltage Directive (73/23/EEC) and carries the
CE marking accordingly.

    The product was evaluated and tested with the High Capacity Input (C5621A,
C5622A) and High Capacity Output (C5624A) accessories.

    September 1, 1996   *Joe DeWeese*
                                     Joe DeWeese, Quality Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH,
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Using Paper

The D640 prints on a variety of print media, including paper, labels, and overhead transparencies, at up to 600 x 600 dots per inch (dpi).

Note   The D640 does not accept envelopes as print media.

The D640 printer uses laser electrophotographic technologies. In this process, a laser writes an electrostatic image onto the photosensitive drum. As this image passes the developing station, a dry, powdery toner is attracted to the imaged areas. This developed image then advances to the transfer station, where the belt contacts the media and the toner image is electrostatically transferred onto the paper. After transfer, the media passes through the fuser; heat and pressure are applied and the toner fuses (melts) onto the media. The media is then deposited in the output tray, ready for use.

To create the printed image all print media must be transported through the printer, electrostatically charged, and heated. This is why media properties such as electrical resistivity, caliper, smoothness, and stiffness can affect the print quality and media handling performance of your D640 printer.

Supported Print Media Types

Your D640 printer will print on a variety of media, including paper, labels, and overhead transparencies. "Media Selection Specifications and Guidelines" on page D-3 provides suggestions for these different media.

Hewlett-Packard neither warrants nor recommends the use of a particular print media. Media properties are subject to change by manufacturers and Hewlett-Packard has no control over such changes. The customer assumes all responsibility for the quality and performance of media. Although testing media helps to characterize their performance, long-term satisfaction requires process quality control by the manufacturer and proper handling until use.

Alternate Sources of Information

The manufacturer and the vendor of the media that you select should be able to provide information about the suitability of its use in a D640 printer. Your vendor should be your contact when selecting media for your individual application needs. If you have tried all of the suggestions outlined in this document, and still need assistance, HP provides support through the world-wide network of Hewlett-Packard Sales and Service Offices. Refer to "Warranty and Support" on page F-1.

In the United States, Hewlett-Packard also offers support through a local support representative. A customer support technician will be happy to offer advice to help solve your printer operation problems.

Paper Manufacturing

Laser printers require paper types and specifications that were uncommon just a decade ago. Until then, no distinction was made between writing paper and xerographic paper. The manufacture of paper is complex. Several different mills may offer the same type of paper (for example, 25% cotton bond, writing stock) but each manufacturer will vary the texture, color, fiber, lignin, coating, and other elements which make their product unique. In the paper industry, there are no equivalent papers between manufacturers, only substitutes.

Sources of Paper

Paper is primarily made from cellulose fiber, the major component of the cell walls of wood fibers and other plants. Sources of this fiber include:

- Raw Wood
- Recycled or waste wood
- Cotton

Pulping methods are based, in part, on the fiber length of the raw wood. Hardwoods, such as cottonwood, contain short fibers, from one to two millimeters in length. Softwood fibers, including pine, spruce, and other conifers range in length from three to six millimeters. In each case, the thickness is less than that of a human hair.

These differences often mean variability among paper manufacturers, even within the same company. To ensure quality and consistency, a certain percentage of this material must come from raw wood. Timber may be harvested from national forests and private land as well as tree farms or plantations.

Surface Coatings

A thin layer of coating may be applied to the paper which could change its physical characteristics. These surface coatings or "sizings" are added to make the sheets more resistant to ink or water penetration and to increase durability. Coatings may also be added to create a neutral pH in paper used for archival storage (such as legal documents). Surface coatings are usually liquid starches and are applied either by spraying, immersion, or mixing into the furnish.

Heavy coatings of clay or talc should be avoided because they become hard and brittle, causing the fibers to break like a piece of chalk and come off during printer operation. Surface coatings also affect the surface electrical resistivity, which is a important factor in the performance of your D640 printers.

Cast Surfaces

When a very smooth surface is required, a clay and water solution is applied to the paper, and is then "cast" under high temperatures. Cast surface paper is mainly used for offset color presses and making original typeset master sheets used in publication printing. This type of paper is not recommended for D640 printers because clay is very abrasive to components in the paper path.

Packaging

Packaging is an important step in the paper-making process. Much of the paper used for computing printing applications is packaged in reams: wrapped bundles containing 500 sheets. Because paper is hygroscopic, or capable of absorbing or losing moisture from the air, it should be protected by moisture-proof polylaminated wrapping and moisture barriers. A ream of finished paper usually contains about 4% moisture. The paper ream remains stable if properly stored and opened only when ready to be used.

Paper Ream Label

A ream label is placed on the outside of the paper wrapping. The ream label usually indicates paper: basis weight, size, number of sheets, grain direction and grade. The printing surface of the paper may be indicated by an arrow on the ream label. Paper should be loaded into the printer so that surface indicated by the arrow will be the printing surface. The printing surface may be up or down, depending on the printer model and the paper feeding source.

PAPER

Dual Purpose 20 lb. Paper 8½ x 11

(10 Ream Carton)
The most versatile paper
you can use, from copying
to electronic printing.

500 sheets 8½ x 11 (216mm x 279mm).
Substance 20lb. (75 g/m²), White.
Grain: Long

Print arrow
side first
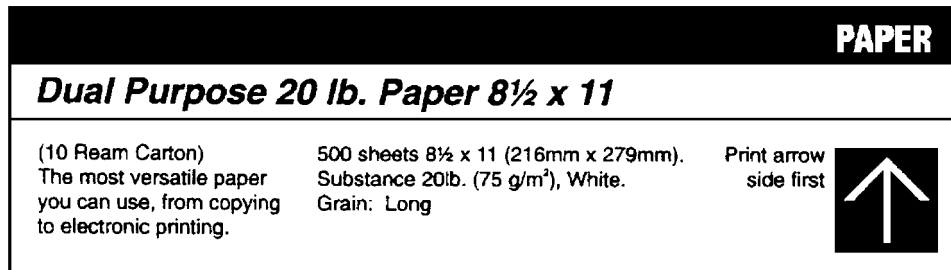
Figure D-1   Ream Label

Media Selection Specifications and Guidelines

Hewlett-Packard neither warrants nor recommends the use of a particular print media. Media properties are subject to change by manufacturers and Hewlett-Packard has no control over such changes. The customer assumes all responsibility for the quality and performance of media. Although testing media helps to characterize their performance, long-term satisfaction requires process quality control by the manufacturer and proper handling until use.

Recommendations to the Customer

Hewlett-Packard D640 printers are designed to be as flexible as possible in the types of print media they can use. Since there are many varieties of media and variations in the manufacturing process, you should test a particular medium in your environment to determine if it performs acceptably.

Buy Media that Meets Specifications

To get the best performance from your D640 printer, select high quality print media that meet the guidelines and specifications in this document.

Test Small Amounts of Media

The next step in choosing media, particularly if you are planning a large purchase, is to print a small quantity in your environment. Subject it to the temperature, humidity, and printing application in which it will be operating. *DO NOT purchase large quantities without first testing the media!* Hewlett-Packard recommends that you ask your media vendor for a guarantee that their media will perform satisfactorily in your D640 printer, and that you ask the vendor to assume responsibility for the replacement of any media that will not print acceptably.

Use High Quality Media

Hewlett-Packard printers will work best with high quality media. Quality media for D640 printers are characterized by uniform physical properties, freedom from dust and lint, accurate cutting to size, and packaging that protects it from moisture and physical damage. Curled or bent edges, spots, dust or lint, wrinkling, and inaccurate cutting to size are common media problems that should be avoided. These problems can cause misfeeding, jamming, premature wear, or unsatisfactory print quality.

Size

Table D-1, "Paper sizes" shows paper sizes that can be used with D640 printers. Shown also is the numeric code displayed on the operator panel for each paper size. All paper sizes can be used in either simplex or duplex printing modes. Use only paper that is within the dimensions shown in Table D-1, "Paper sizes".

Note   Although the D640 printer can print over the entire sheet, we do not guarantee quality for print in the outer 5mm of the page periphery. This border will vary slightly with the quality of the paper used.

Table D-1   Paper sizes

Size	Dimensions	
A3	11.69 X 16.53 in.	297 X 420 mm
A4	8.26 X 11.69 in.	210 X 297 mm

Table D-1   Paper sizes

Size	Dimensions	
A5	5.84 X 8.26 in.	149 X 210 mm
JIS B4	10.11 X 14.32 in.	257 x 364 mm
JIS B5	7.16 X 10.11 in.	182 X 257 mm
Letter	8.5 X 11 in.	216 X 280 mm
Legal	8.5 X 14 in.	216 X 356 mm
Ledger	11 X 17 in.	280 X 432 mm
Executive	7.25 X 10.5 in.	184 X 267 mm

Basis Weight

Basis weight is an important characteristic to consider because, paper that is too light or too heavy may cause misfeeds, mis-stacking, paper jams, or excessive mechanical wear.

The printer is specifically designed to perform at maximum efficiency when 20 pound bond ($75g/m^2$) paper is used. Optimum print quality and paper path reliability are achieved when high quality electrophotographic (EP) paper is used. EP papers have specific characteristics that distinguish them from bond papers. The range of paper weight that the printer and HCI can process is 17 to 24 pound (64 to 90 g/m^2). The printer can handle paper weights up to 36 pound (135 g/m^2), but 17 to 24 is optimum.

Specifications for basis weight depend upon the paper source the paper is fed. In general, the straighter the paper path, the heavier the basis weight may be. For more complex paper paths, as in feeding from the HCI, a lighter weight may be required, in range of 18 to 24 pound.

Furnish (Composition)

Furnish is the fiber and chemical composition of paper. Fiber composition of the paper used in D640 printers should be manufactured from 100 percent chemical wood pulp and/or cotton fiber. To ensure that paper of a special fiber composition will work properly, always test it before purchasing large quantities. Other allowable components of paper are sizing, fillers, buffers and pigments.

Note   DO NOT use coated paper or paper containing materials that melt, vaporize, offset, discolor or release hazardous emissions when exposed to 392°F (200°C).

Curl

Curl is curvature in a sheet of paper. Curl is typically measured by laying the sheet of paper on a flat surface, with the corners up, and measuring the height of the corners. In-ream curl is the amount of curl a sheet of paper has before printing. (In-ream curl may result from the paper manufacturing process or from exposure to the environment). Post-image curl is the amount of curl a sheet of paper has after printing (from exposure to the fusing process and paper path in the printer). Paper with excessive in-ream curl may lead to feeding and print quality problems. In addition paper with excessive post-image curl may be difficult to handle or use in automatic-feed photocopiers.

The curl side of the paper can be identified by a slight concave bowing from the outside edges of the paper stack towards the center of the top sheet. This curled side is always the side that should face away from the printer's photoconductor. Having the curl side face away from the photoconductor helps the paper separate from the photoconductor surface during the printing process.

Paper curl becomes more obvious after fusing of a print. If the curl of a printed page appears too excessive, it is likely that paper handling problems may occur during duplex printing. If this is the situation, open the paper tray and turn the paper over. Try printing again. If the problem is still not resolved, select a different paper for duplex printing, and reserve the "problem" paper for single-sided printing.

Besides paper handling problems, excessive curl may also result in blurred print and similar print quality problems. The HP standard for in-ream paper curl is no more than 0.2 inches (5 mm) on any part of the paper, with 0.1 inches (3 mm) the optimal value.

Finish (Texture)

Finish, or texture, is the degree to which the surface is free of irregularities (or the smoothness or roughness of the paper). Using paper that meets HP specifications for surface texture is critical to the operation of D640 printers. The degree of surface texture is determined by the fiber composition of the paper, fillers which may have been added to the paper mixture, and the number of passes through the calendar stacks. Common paper textures included cockleshell, linen and laid.

Potential Problems

Some textures improve paper feeding while others hinder the feed operation. Too smooth or too rough paper can cause a variety of problems in D640 printers.

Table D-2   Finish (texture) potential problems

Problems	Too Smooth	Too Rough
Feeding	• misfeeds	• misfeeds • multi-feeds
Print Quality	• poor toner adhesion • washout will show up (loose toner particles from a previously printed page) • background toner scatter	• poor toner adhesion • light and dark transitions (toner migrates to the valleys of the paper surface, but not the peaks) • printed characters may have broken edges
Premature Wear	none	• registration roller • paper path rollers • fuser • paper path guides

Felt Side vs.Wire Side

The way paper is manufactured results in two-sided paper properties. This, along with other process variations, may make one side of the paper the preferred side to print on. The "top" side of the paper sheet as it is formed is known as the felt side, and the "bottom" is known as the wire side. Most manufacturers indicate the preferred printing side on the package.

Moisture Content

Note   Moisture content is the most critical factor in paper performance in D640 printers. The moisture content of most paper at the time of manufacture is about 4-6% of volume by weight. This percentage can be altered as a result of environmental conditions during converting processes, shipping, storage, and printing.

Storage, especially over long periods, can greatly influence moisture content. Because of the hygroscopic properties of paper, unless proper humidity and temperature are maintained, the paper will lose or gain moisture.

The environmental conditions required to maintain the proper moisture content is 68°F to 75°F (20°C to 24°C) with a relative humidity of 45% to 55%.

Table D-3   Moisture content potential problems

Too Moist	• Paper shrinks unevenly during fusing, causing print quality problems • Overall paper curl increases (increases post-image curl, causes poor toner adhesion, feed and print quality problems)
Too Dry	• Excess static (causes multi-feeds and paper jams) • Surface electrical resistivity (causes streaking and smudging of loose toner particles)

The HP standard for moisture content is 4.7% ± 1% by weight. Although a paper may have the proper moisture content at the time of manufacture, exposure to temperature and humidity extremes may alter the percentage.

Fusing Compatibility

Media that does not meet HP specifications may:

- Discolor
- Melt
- Scorch
- Offset
- Release hazardous emissions
- Have poor toner adhesion
- Break down in other ways
- Possibly damage the printer

All media used in D640 printers must have the ability to withstand the fusing temperature of 392°C/200°C for 0.1 second, without experiencing any problems.

Inspect the rollers for colored ink build-up from pre-printed logos or letterhead and for toner buildup or spots. Inspect printed output for repetitive defects and smearing. If necessary, contact your forms vendor to ensure paper's fusing compatibility with D640 printers.

Understanding Paper Ream Labels

Figure D-2, shown below, is an example of a typical label from a ream of paper. It includes much of the information about paper use and paper specifications.
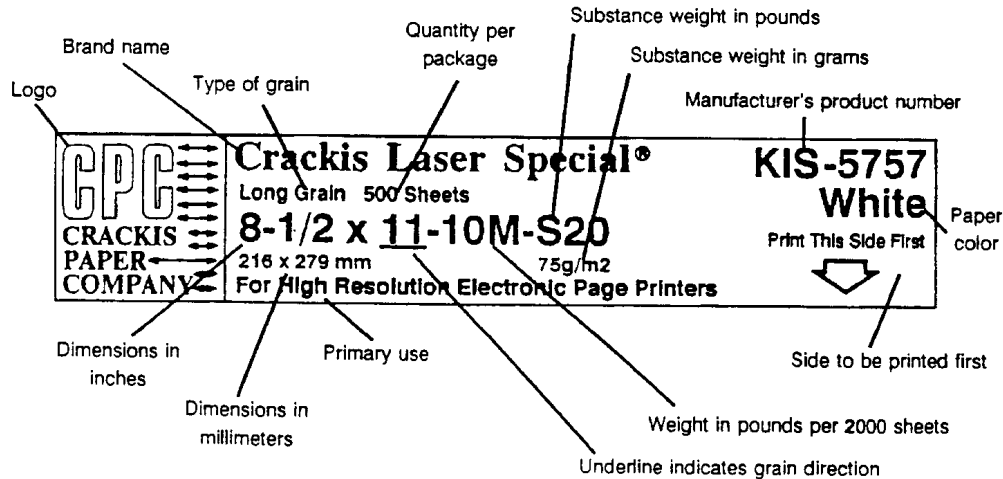
Figure D-2   Paper Ream Label details

General Guidelines

Some general guidelines to follow when selecting media are summarized on the following pages.

Use conventional white xerographic paper for most printing. The paper should be of high quality, free of cuts, tears, grease spots, loose particles, dust, wrinkles, voids, and curled or bent edges. Xerographic papers, also called photocopy or xerocopy papers, are usually made from chemical wood pulp and are characterized by a smooth surface, controlled electrical properties, heat stability, and cleanliness. These characteristics ensure good image transfer, fusing without excessive curl, and reliable printer operation.

Some applications may require a paper having a more prestigious look or feel. Bond papers generally have a watermark and often use cotton fiber. These papers tend to have a rougher surface and their properties may not be controlled like xerographic papers. However, your D640 printer will print satisfactorily on many of these bond papers. Also, some paper manufacturers are now making laser grade bond papers which have properties compatible with laser quality printing.

One of the most important things you can do to ensure the best possible performance from your D640 printer is to select a quality paper. Table D-4, "Recommended paper specifications", summarizes the specifications of a paper that will give you the best performance.

Note   It is possible that paper could meet all of the general specifications listed in this table and still not print satisfactorily because of the printing environment or other variables over which Hewlett-Packard has no control.

Recommended Paper Specification Summary

Table D-4   Recommended paper specifications

Parameter	Specification
Paper Weight	17 to 24 pound (64 to 90 g/m^2) for printer and HCI; printer supports up to 36 pound (135 g/m^2)
Paper Grade	No. 1 or No. 4 electrophotographic
Paper Direction	Long grain (parallel to the long dimension) Short grain (ideal for letter/A4 size paper)
Furnish	Fiber composition: 100% chemical wool pulp and /or cotton fiber
Ash Content	Not to exceed 10%
Moisture Content	4.7 ± 1% by weight
Smoothness	100 to 200 Sheffield units Front side: 30 ± 12 Sec Back side: 23 ± 10 Sec
Friction Coefficient	0.45 to 0.65 0.55 to 0.15 (dynamic) 0.60 ± 0.15 static
Surface Resistivity	10^{10} to 10^{12} Ohms
Caliper	97± 3 μm
Finishing	Cut sheet to within ±0.03 in (±0.8mm) of nominal, ±0.2° square
Cut Edge Conditions	Rotary precision cut
Packaging	Polylaminated moisture-proof ream wrap

Using Paper

Table D-4   Recommended paper specifications

Parameter	Specification
Stiffness (Clark Method)	Printing direction: 90 ± 25 Cross direction: 40 ±15
Fusing Compatibility	Must not scorch, melt, offset, or release hazardous emissions when heated to 392° F (200°C)
Opacity	84% ± 3%
Wax Pick	12 minimum (Dennison)
Grain	Letter / A4 is best with *short grain* For all other sizes, use *long grain*

Pre-printed Forms and Letterhead

To avoid multiple feeding and jamming problems when using pre-printed forms, embossed paper, and letterhead, observe the following guidelines:

- Do not use low-temperature inks (the kind used with some types of thermography).
- Use forms and letterhead printed by offset lithography or engraving.
- Forms must be printed with heat-resistant inks that will not melt, vaporize, or release hazardous emissions when heated to 392°F (200°C) for 0.1 second. Typically, oxidation-set or oil-based inks meet this requirement.
- If oxidation-cured inks are used, the use of oxidation retardants should be minimized.
- When the form is pre-printed, be careful not to change the moisture content of the paper, or use materials that change the paper's electrical or handling properties. Forms should be sealed in moisture-proof wrap to prevent moisture changes during storage.
- Pre-printed forms should not be processed with a finish or coated at the end of their production.
- Do not use heavily embossed or raised letterhead papers.
- Avoid papers with heavily textured surfaces.
- Avoid using a band of ink on the leading edge of the paper.
- Water additives must not be used, as they change the conductivity of the paper. The effect of the electrical charge applied to the paper during the printing process may be altered.
- Following offset printing, the printed pages should be allowed to dry for one to two weeks in an atmosphere of 60°F to 80°F (16°C to 27°C) with a relative humidity of 35% to 50%.

Adhesive Labels

For the purposes of this specification, a label is defined as paper with a pressure-sensitive adhesive backing. Label stock includes the top or face sheet, the adhesive, and the liner or carrier sheet, also referred to as the backing.

Note the following points about label stock:

- Top or face sheets: The top sheet, which is the printing surface, is usually composed of xerographic paper. Label top sheets must provide good toner adhesion.
- Carrier sheets: The carrier sheet must be compatible with the temperatures and pressure of the fusing process, and must be coated for easy release of the top sheet.
- Adhesives: The adhesive must be stable at the 392°F (200°C) temperatures encountered in the printer's fusing process, and must not produce emissions that exceed exposure levels or threshold limits established by OSHA and other safety agencies. Adhesives must not come in direct contact with any part of the printer. No adhesive should be pressed out of the edges or between die-cuts (the cuts between individual labels).
- Label arrangement: Labels should be arranged on the carrier sheet so that *any exposed spaces run lengthwise down the sheet* (See Table D-5, "Label specifications".) Using label stock with spaces between the horizontal rows of labels can often result in labels peeling off during printing, causing serious jamming and possible printer damage.

Labels may be specially manufactured to leave a margin around the outside edges that correspond to the outer margins of the printable area. If this special arrangement is to be used, DO NOT REMOVE the excess top sheet material from the carrier sheet.
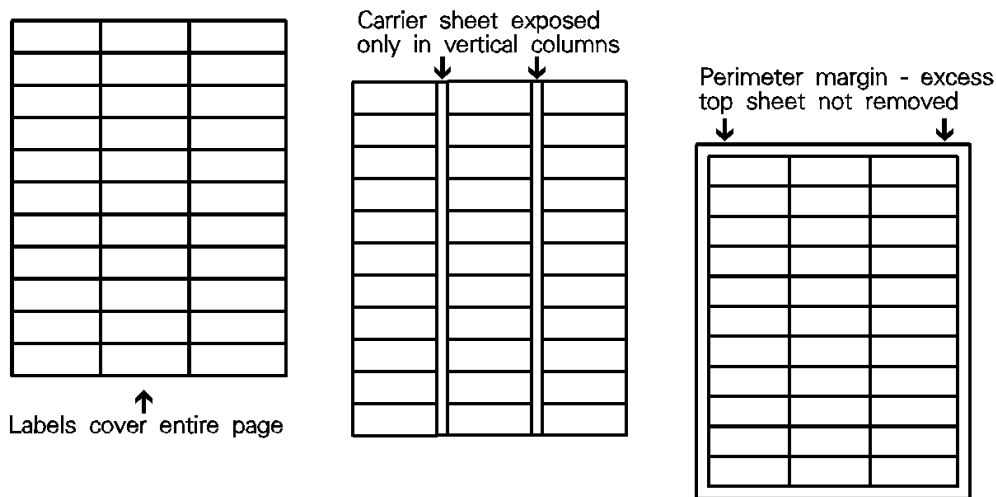
Figure D-3   Adhesive Label arrangements

Note It is possible that labels could meet all of the general specifications listed in "Adhesive Label arrangements" and still not print satisfactorily because of the printing environment or other variables over which Hewlett-Packard has no control.

Table D-5   Label specifications

Adhesive	Must not be on any external surfaces of the label before, during or after printing. Label construction and die-cutting must not allow labels to peel off during transport, printing, or fusing.
Basis Weight	32 to 34 pounds (120 to 128 g/m^2).
Curl	In-ream: flat within 0.2 in. (5 mm).
Finishing	Cut sheet within 0.031 in. (0.79 mm) of nominal and within 0.2° of square.
Fusing Compatibility	All adhesives, carrier sheets, top sheets, and other materials used in label construction must be compatible with the heat and pressure of the fusing process. Materials must not discolor, melt, offset, or release hazardous emissions when heated to 392°F (200°C).
Packaging	Moisture proof wrap to preserve properties.
Shelf Life	One year, minimum, stored at 72°F (22°C) and 50% R.H.

Refer to *Purchasing* in the next section for ordering HP labels.

Note The following actions can cause labels to peel off, possibly damaging the inside of your printer: printing on labels while the printer is in duplex mode or removing individual labels from the carrier sheet, then printing on the remaining labels.

Note Hewlett-Packard does not recommend removing any labels from the carrier sheet and then printing on the remaining labels. If labels must be removed, remove them from the bottom of the carrier sheet, continuing toward the top.

Note Overhead transparencies used in D640 printers must be able to withstand the 392°F (200°C) temperature encountered in the printer's fusing process.

Specifications for overhead transparencies are summarized in Table D-6, "Overhead transparency specifications summary".

Refer to *Purchasing* in the next section for ordering HP transparencies.

Table D-6   Overhead transparency specifications summary

Basis Weight	45 to 60 pound (170 to 225 g/m^2)
Cutting Angle	90°plus or minus 0.2°
Finishing	Plus or minus 0.03 in. (plus or minus 0.8 mm)
Fusing Compatibility	All materials of the overhead transparency must be compatible with the heat and pressure of the fusing process. Materials must not discolor, melt, offset material, or release hazardous emissions when heated to 392°F (200°C).

Recycled Paper

Recycled paper is a combination of waste paper, pre-consumer waste, and post-consumer waste. Printed waste paper is usually washed to remove most of the inks and other contaminants. A recycled sheet of paper may contain dark specks or appear gray or dirty. You should choose a recycled paper that meets the same specifications (except perhaps brightness) as standard paper, and has an appearance suitable for your needs. Hewlett-Packard recommends that the recycled paper contain no more than 5% groundwood.

Note   Depending on the quality of recycled paper, you may experience a higher jam rate and reduced consumable life compared to equivalent quality non-recycled paper.

Archival Paper

Paper used for archiving must meet the same specifications as standard paper, however, the pH should be no less than 7.0. Some archival demands are more stringent than others, requiring the degree of alkalinity and chemical stability to be specified.

Toner is chemically stable and should last as long as the paper does. Toner can be degraded by petroleum based solvents or plasticizers, such as those found in vinyl folders. Avoid folding archival documents across printed areas or handling them roughly. Discuss archival requirements with your paper supplier.

Colored Paper

Colored paper can be used in D640 printers as long as the standard paper specifications are met.

Paper with Cutouts or Perforations

Hewlett-Packard does not recommend using paper with cutouts or perforations because they often cause paper handling problems and may cause printer damage.

A *cutout* is defined as any portion of the paper that has been removed, including binder holes, notches, square cuts, etc.

Paper with internal *perforations* may cause misfeeds and paper jams.

If you must use papers with internal perforations or cutouts, take care to conform to the following:

- Cutouts and perforations should be punched from the side to be printed on, so that edge trimmings will not scratch the photosensitive belt.
- Do not print at a cutout location, or closer than 1/8 inch (3.5 mm) to the edge of a cutout, to prevent toner from contaminating the inside of the printer.
- Cutouts and perforations should be cut clean (without burrs), to avoid multiple feed, contamination problems, or paper jams.
- Avoid perforations that run perpendicular to the paper path. When the printer transfers paper from one set of rollers to the next, a perforation can cause the page to bend downward and miss the pickup point on the next roller.

Chemically Treated Paper

Coatings such as lacquers, polymers, laminations or other chemicals protect the paper but can cause problems in the fuser and transfer areas of D640 printers. The surface resistivity and moisture content can be greatly altered, resulting in print quality problems. Hard surfaces coatings increase wear on the rollers and paper guides. All chemically treated paper must meet HP specifications for fusing compatibility.

Synthetic Paper

Synthetic papers (those manufactured from man-made fibers) do not perform as well as bond papers in any printer, especially D640 printers. Each type has its own problems which result in poor feed and print quality performances. All synthetic papers must follow HP specifications, especially for caliper and fusing compatibility. Be cautious about heat-generated fumes which may be dangerous to breathe.

Coated Paper

Do not use papers where a coating has been added after the paper is produced. Most coated paper does not meet specifications for fusing compatibility, as well as all other specifications for D640 printers.

Other Special Media

Odd sizes

Check minimum and maximum supported sizes in Figure 3-4, Paper Sizes quick reference, on page 3-4.

Carbonless Paper

Carbonless paper (NCR) is not supported by D640 printer.

Recycled Paper

Choose recycled paper that meets HP specifications (except perhaps brightness) and that has an appearance suitable for your needs. HP recommends that recycled paper contained no more than 5% groundwood.

Things to Avoid

DO NOT attempt to print on any of the following:

- Extremely shiny or glossy paper.
- Very rough, textured, or embossed media.
- Multipart forms or carbonless papers.
- Media, media coatings, dyes, or inks that produce hazardous emissions or melt when exposed to a fusing temperature of 392°F (200°C).
- Media that offsets or discolors.
- Media with folds, staples, paper clips, etc.
- Damaged, curled, wrinkled, or irregularly shaped media.
- Letterhead paper produced using low temperature dyes or thermography.
- Paper containing large amounts of clay or talc.
- Media that have already been printed with a photo copier or a D640 printer.
- Low quality recycled paper.

Purchasing, Handling, and Storing

The performance of D640 printers is dependent on the condition of the print media used. This section contains recommendations for purchasing, shipping, handling and storing media.

Acceptable paper can be purchased from your local supply house. Ask your vendor to verify that the paper will work acceptably with a D640 printer.

In the United States, overhead transparencies are supplied by Hewlett-Packard through HP SafetyNet (to order transparencies in Europe, contact your local HP sales office). To order from HP SafetyNet, call (800) 538-8787 and ask for the HP part number listed below. Each box contains 50 overhead transparencies.

Purchasing Information

Transparency Size	HP Part Number
Letter - 8.5 x 11 in. (216 x 279 mm)	92296T
A4 - 210 x 297 mm (8.26 x 11.69 in.)	92296U

In the United States, Hewlett-Packard supplies labels through HP SafetyNet (to ordering labels in Europe, contact your local HP sales office). To order from HP SafetyNet, call (800) 538-8787 and ask for the HP part number listed in Table D-7, "Hewlett - Packard laser printer label media". Each box contains 100 sheets, 81/2 x 11 inch (216 x 280 mm), except where otherwise noted.

Table D-7   Hewlett - Packard laser printer label media

Label Size (Height and Weight)	Number per sheet	HP Part Number
1 x 2 5/8 in (25 1/2 x 51 mm)	30	92296A
1 1/3 in x 4 (25 1/2 x 102 mm)	14	92296B
1 x 4 in (25 1/2 x 102 mm)	20	92296C
2 x 4 in (51 x 102 mm)	10	92296D
3 1/3 in x 4 85 x 102 mm)	6	92296E
1/2 in x 1 3/4 (13 x 45 mm)	80	92296F
2/3 in x 3 7/16 (18 x 88 mm)	30	92296G
2 3/4 in x 2 3/4 (70 x 70 mm)	9	92296H*
1 1/2 in x 4 (39 x 102 mm)	12	92296J*
8 1/2 x 11 in (215 x 280 mm)	1	92296K

*Contains 75 sheets, 8 1/2 x 11 in. (216 x 280 mm).

Shipping

When print media are shipped through different environments, the entire stack of cartons on the shipping pallet should be plastic wrapped. When shipped across bodies of water, individual cartons should be wrapped, as well. Media should never be shipped in such a manner that they are damaged or bent along the edges.

Storing

Adhere to the following guidelines when stacking and storing print media:

- DO NOT store cartons of reams directly on the floor; cartons should be placed on a pallet or on shelves.
- DO NOT store individual reams in such a manner that they will curl or warp along the edges.
- Rewrap partially used reams of paper before storing.
- DO NOT stack more than six cartons high.
- Stack each carton squarely on top of the one underneath.
- Stack each carton upright.
- DO NOT place anything on top of paper, regardless of whether the paper is packaged or not.
- Store envelopes in a protective box so the edges will not be damaged.
- Keep stored media away from extremes in temperature and humidity.
- DO NOT store printed documents in vinyl folders (which may contain plasticizers), or expose the documents to petroleum based solvents.

Environmental Considerations

Media should be protected from temperature and humidity extremes. D640 printers are designed to operate in a wide range of environmental conditions, but for best performance, media should be stored and used at 59°F to 95°F (15°C - 35°C), with a relative humidity of 40% to 60%.

When media are used in an environment outside the ranges of temperature and humidity shown above, follow these guidelines:

- DO NOT leave the media exposed to humidity or temperature extremes. Any extreme changes in the environment will cause the media to take on unwanted characteristics if left unwrapped or in the input tray of the printer.
- Where humidity extremes occur, store paper in an airtight container, or seal it in plastic.
- If there is a significant temperature difference between the media storage area and the printer's operating environment, allow the media to adjust to the temperature in the printer's operating environment before unwrapping. The greater the temperature difference and the greater the amount of media to equilibrate, the longer this time period should be. Allow one day for every 20°F (10°C) difference in temperature between storage environment and printing environment.

Paper is affected by temperature and humidity variations during transport, storage, and use. When the atmosphere is moist, paper tends to have wavy edges; conversely, when the atmosphere is dry, paper tends to have wavy centers.

Acclimatizing paper to the "best performance conditions" described above minimizes these adverse affects, but exposure to temperature and humidity extremes will eventually make acclimatization impossible. In extreme conditions, the paper may become unfit for use. For optimum results, keep paper supplies in moisture-proof packaging and load only the amount that will be used soon.

Printer Normal Operating Environment

The specifications for the printer's operating environment are defined below. Observing these environmental guidelines helps ensure trouble-free printer operation.The temperature and humidity of the paper used with the printer should be in balance with the printer's environment.

- Temperature 59°F to 95°F (15°C to 35°C)
- Relative Humidity 20% to 80%
- Altitude 0 to 7000 feet (0 to 2150 m)

Total Operating Environment

Figure D-4 is a map of the operating range of the printer, showing recommended maxima and minima for temperature and humidity. Operating the printer in the A,C, D, and E areas of Figure D-4 may result in lower-quality prints.
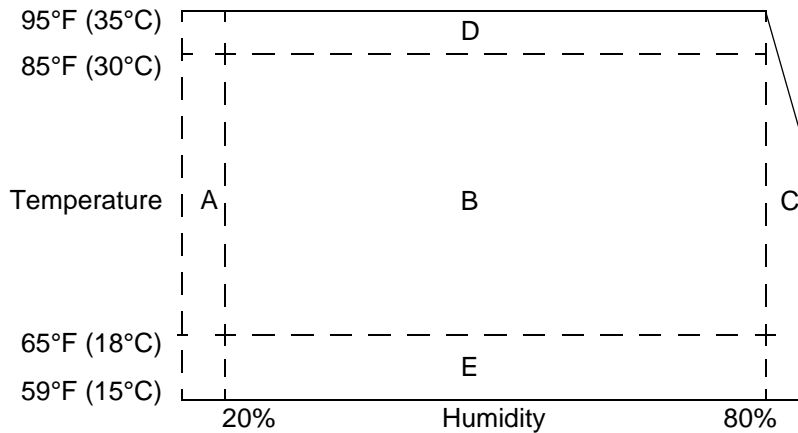
Figure D-4   Total operating environment

Troubleshooting

Paper problems are somewhat difficult to detect. A series of steps will help isolate paper-induced problems. The steps to follow are:

- Is it a paper or a printer problem?
- Isolate a paper path
- Isolate a paper brand
- Isolate a paper type
- Evaluate user's paper practices
- Evaluate environmental conditions

Is it a Paper or Printer Problem?

When determining a printer failure, a distinction must be made between problems relating to the printer itself and those involving paper. Often a problem which first appears to be related to the printer is actually a matter of poor paper selection or handling. To determine is a problem is printer or paper-induced a few simple steps can be helpful:

- Turn paper over in the tray to print on the reverse side.
- Rotate sheets 180° (end to end) to feed with a different leading edge.

If the symptoms cease, or change in some way, it can be assumed that the problems are paper induced.

Isolate a Paper Path

The physical properties and composition of a particular paper influence its motion along a printer's main paper path. As a general rule, the straighter a paper path, the more forgiving it is of the paper's physical characteristics.

Try Using the Straightest Paper Path

Some problems can be avoided by using the straightest paper path. Feed paper from tray1. This path is recommended for transparencies and heavy basis weight media.
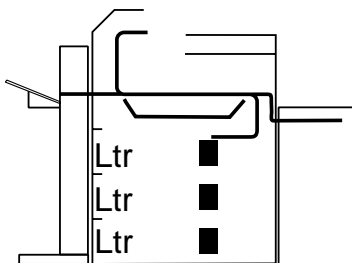
Figure D-5   D640 paper paths

Determine if the Problem is Due to Duplexing

The duplexing feature may have both paper feed problems and print quality problems as a result of printing on paper that has just made a pass through the printer (resulting in increased paper curl). This paper curl increases image dropout, and pickup and stacking problems. The second pass is made with paper which may no longer meet the specifications for moisture and curl. Dry paper may not hold static charges which affect print quality and stacking. Image mis-alignment front-to-back on a duplexed page may be caused by paper shrinkage.

Isolate the Source From Which the Printer Jams

Where was the paper being fed from? Possible sources include:

- Tray1, Tray2, Tray3
  (500 20 pound paper sheets each)
- High Capacity Input Unit
  (3000 20 pound paper sheets)

Where Does the Jam Occur?

Check where paper stops when a jam occurs. Types of jams that can occur include:

- Input paper jams
- Internal paper path jams
- Output jams

Is the Printer is Experiencing Multi-feed Jams?

The following are some possible causes in multi-feeds.

- Paper may be too light or too thin. Check the basis weight and caliper.
- Paper may be too smooth or too rough. Check the finish.
- Paper may have too much curl. Measure paper curl and check moisture content.
- Paper may have bad edge cuts or edge welds. Observe the cut edge condition.
- The customer may be attempting to print embossed paper, pre-printed forms, or perforated paper which does not meet HP specifications. (See the following section,"Isolate a Paper Type", for details about the difficulties of embossed paper.)
- Paper may be loaded incorrectly. Turn over the sheets in the paper tray to determine if in-ream curl is the cause of misfeeds.
- Customer may be fanning paper before loading it into the paper tray.
- Customer may be adding paper in small amounts. Do not add small amounts of paper or mix types of paper in the tray.
- The printer or paper storage environment may be too humid or too dry. (As a result, paper may be too moist or too dry). Determine if this is the case and advise the customer.

Is the Printer Experiencing Misfeeds?

The following are some possible causes in misfeeds.

- Paper may be too stiff. Check basis weight and measure caliper.
- Paper may be too smooth or too rough. Check the finish.
- Paper may be too heavy or too light. Check the basis weight.
- The customer may be attempting to print embossed paper, pre-printed forms, or perforated paper which does not meet HP specifications. (See the following section, "Isolate a Paper Type", for details about the difficulties of embossed paper.)
- Paper may be loaded incorrectly. Turn over the sheets in the paper tray to determine if in-ream curl is the cause of misfeeds.
- Customer may be fanning paper before loading it into the paper tray.
- The printer or paper storage environment may be too humid or too dry. (As a result, paper may be too moist or too dry). Determine if this is the case and advise the customer.

Isolate Paper Brand

If the printer jams with only one brand of paper:

- If the paper ream being used appears to be old, open a fresh ream of the same paper and load it properly into the printer. If the problem is remedied, investigate storage and handling conditions.
- Do not purchase more paper than you can use in a short time (3 months). Paper stored for longer periods may experience heat and moisture extremes which can damage it. Planning helps prevent damage to your paper supply.
- If the problem persists, try switching paper brands.

Isolate a Paper Type

When paper jams and other problems occur frequently, it is often because special paper is causing the difficulty. Use only paper that conforms to all HP specifications, and always test paper before purchasing large quantities. If future problems occur, the cause may be easily isolated to storage or handling conditions.

Some types of media that may cause problems are:

- Pre-printed forms and special letterhead
- Embossed paper
- Perforated paper
- Adhesive labels
- Envelopes
- Transparencies
- Chemically treated paper

- Synthetic paper
- Coated paper
- Other special media

Refer to Table D-4, "Recommended paper specifications," on page D-10 for a table of recommended media specifications.

Printer Maintenance

General cleanliness of the printer is the most important part of printer maintenance. Good maintenance improves the performance of any printer. Papers which create a lot of dust and debris in the printer require a more aggressive maintenance schedule.

Areas which builds up paper dust heavily are:

- pick-up rollers
- paper guides

Taking extra time to clean and inspect the paper path results in fewer paper jams and cleaner print. If problems continue after cleaning, inspect for wear or damage.

Paper Stacking

Consider the following guidelines when advising the customer about stacking paper:

- Do not store cartons of reams directly on the floor; cartons should be placed on a pallet or on shelves.
- Do not stack more than six cartons high.
- Stack each carton squarely on top of the other.
- Stack each carton upright.
- Do not store individual reams in such a manner that they will curl or warp along the edges.
- Do not place anything on top of paper, whether it is packaged or unpackaged.
- Do not place paper close to heating or air conditioning vents or open windows.

Evaluate Environmental Conditions

Printing Environment

Ideally, the printing environment should be at or near room temperature, and not too dry or too humid. Remember, paper is hygroscopic; it absorbs and loses moisture rapidly.

Heat works with humidity to damage paper. Heat causes the moisture in paper to evaporate, while cold causes it to condense on the sheets. Heating systems and air conditioners remove most of the humidity from the room. As paper is opened and used, it loses moisture, causing streaks and smudging. Humid weather or water coolers can cause the humidity to increase in a room. As paper storage is opened and used it absorbs any excess moisture, causing light print and dropouts.

Paper Storage Environment

Paper storage and handling is as important as the paper-making process itself. Paper storage environment conditions directly affect the feed operation.

Do not purchase more media than you can use in a short time (3 months). Paper stored for long periods may experience damage from heat and moisture extremes. Planning is important to prevent damage to a large supply of paper.

Unconverted paper in sealed reams can remain stable for several months before use. Converted papers have more potential for environmental damage, especially if they are not wrapped in a moisture-proof barrier.

Maintain paper in a storage environment of 59° to 95°F (15° to 35°C), with a relative humidity of 40% to 60%.

- Paper should be stored at or near room temperature.
- The air should not be too dry or too humid (due to hygroscopic properties of paper).
- The best way to store an opened ream of paper is to re-wrap it tightly in its moisture-proof wrapping. If the printer environment is subject to extremes, unwrap only the amount of paper to be used during the day's operation.

E

Printing Reports

The D640 printer has built-in reports that can be printed as offline test prints. This appendix describes how to print these reports and gives a sample of each type of report.

The Printer Setup Report

The printer stores all configuration settings. The setup report show the printer's current configuration options as well as page counts and code revision values.

To print the Setup report:

1. At the Main Screen, press Test.

    SETUPS is highlighted.

2. Press Select.

    A two-page report is printed:
    Figure E-1 (1 of 2) lists all menu settings.
    Figure E-2 (2 of 2) lists information about the floppy and hard disk drives.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│  ⏱  HP 5000 Model D640 Printer          [hp] HEWLETT                          │
│      SETUP REPORT                            PACKARD                          │
│                                          Serial No.  JP20000147  ❶           │
├─────────────────────────────────────────────────────────────────────────────┤
│ ❷                                                                             │
│      Menu: Printing      ❸       Menu: Configuration  ❹         Menu: PCL  ❺  │
│                                                                               │
│ copies        = 1            newline        = CR+LF        font       = Courier│
│ intray        = TRAY1        traylock.tray1 = UNLOCKED     symbolset  = ROMAN8 8U│
│ paper         = auto         traylock.tray2 = UNLOCKED     pitch      = 10.00  │
│ duplex        = OFF          traylock.tray3 = UNLOCKED     pointsize  = 12.00  │
│ binding       = LONGEDGE     sizes          = CONFIRM      vcartridge1 = none  │
│ jobseparate   = none         imageshift.top = 0            vcartridge2 = none  │
│ emulation     = Auto         imageshift.left = 0                               │
│ orientation   = PORTRAIT     customsize.width= 8417                            │
│ lpi           = 6.00         customsize.height= 12240                          │
│ error-report  = none         units          = MM                              │
│                              dpi            = 600dpi                           │
│                              clip           = ON                              │
│                              jamrecovery    = ON                              │
│                              economode      = OFF                             │
│                              powersave      = 1 HR                            │
│                              language       = ENGLISH                         │
├──────────────────────────────────────────────────────────────────────────────┤
│      Menu: Comms        ❻        Menu: Maintenance  ❼        Menu: PapSize  ❽ │
│                                                                               │
│ timeout        = 15          alignment.tray1 = 14         tray1size   = LETTER │
│ databuffer     = 32          alignment.tray2 = 12         tray2size   = LETTER │
│ parallel.speed = FAST        alignment.tray3 = 16         tray3size   = CUSTOM │
│ parallel.mode  = ADVANCED    alignment.duplex= 1                              │
│ serial.baud    = 19200       alignment.duplexv= -7                            │
│ serial.stopbits = 1BIT       density         = 10                             │
│ serial.parity  = none        testpages       = 30                             │
│ serial.flow    = XON/XOFF    monitor         = OFF                            │
│ serial.dtr     = HI/LO                                                         │
│ serial.levels  = RS232                                                         │
├──────────────────────────────────────────────────────────────────────────────┤
│      Printer Information      ❾                                               │
│                                                                               │
│ Total page count      = 7294                                                  │
│ Paper Width           =  8.50"/216mm (5100 pixels)                            │
│ Paper Height          = 11.00"/280mm (6600 pixels)                            │
│ Print Width           =  8.02"/204mm (4816 pixels)                            │
│ Print Height          =  9.97"/254mm (5985 pixels)                            │
│ Total RAM size        = 32768 kbytes                                          │
│ Page RAM size         = 23249 kbytes                                          │
│ Free RAM size         = 8074 kbytes                                           │
│ Permanent softfonts   = 0                                                     │
│ Characters received   = 0                                                     │
│ Characters lost       = 0                                                     │
│ Protocol errors       = 0                                                     │
│ Engine firmware rev.  = E01V03L17                                             │
│ Function Code revision= E01V09L08h                                            │
│ Function Code dates    = 961027/961027                                        │
│ PowerPage PS version  = 2003.002/27f                                          │
│                                                                          ❷   │
│                                              NOV 20 1996  22:25:32            │
└──────────────────────────────────────────────────────────────────────────────┘
```

Figure E-1   Printer Setup Report Sample (1 of 2)

Setup Report, Page 1 Key

① This is the serial number for your printer.

② This is the time of day the Setup Report was printed, shown in the upper left corner as a clock face, and in the lower right corner as text.

③ This section lists all of the current values for the Printing Menu settings. If you have installed an HCO, you will also see the outbin, joboffset, and HCI-alias settings.

④ This section lists all of the current values for the Configuration Menu settings.

⑤ This section lists all of the current values for the PCL Menu settings.

⑥ This section lists all of the current values for the Comms (Communications) Menu settings.

⑦ This section lists all of the current values for the Maintenance Menu settings.

⑧ This section lists all of the current values for the PapSize Menu settings.

⑨ This section lists information about the current state of the printer and some statistics about its operation.

The Total page count is the number of pages printed since the last report was printed.

Paper Height and Width are the physical dimensions of the paper in the current INTRAY. Print Width and Height are the dimensions of the image printed on the paper.

Total RAM size is the amount of memory in the printer.

Page RAM size is the amount of memory available to compose images. This space is used for fonts, graphics, and other information.

Free RAM size is the amount of memory left over after page RAM is reserved.

The last four lines of this section contain version numbers for printer hardware and software. In the event of problems, your service representative may ask for these version numbers to help troubleshoot the printer.

Printing Reports

HP 5000 Model D640 Printer
SETUP REPORT

HEWLETT
PACKARD

❶ ❷ **Disks** ❸

A **C**

Driver:ATA FILE SYS

```
Cluster size (sectors x bytes): 32x512
FAT size (number x sectors):     2x203
FAT entry size (bits):              16
Used/max entries in root dir:     7/512
Used/total data sectors:    160000/1659712
Total free space (Megabytes):    732

   Volume label:      E01V03

USER_ADJ\
PCL5\
PS\
MAINT\
FONTS\
CRT\
```

Floppy diskette not inserted

NOV 24 1996 14:30:17 ❶

Figure E-2 Printer Setup Report Sample (2 of 2)

Setup Report, Page 2 Key

① This is the time of day the Setup Report was printed, shown in the upper left corner as a clock face, and in the lower right corner as text.

② This area shows the contents of any diskette inserted in the internal 3.5" disk drive (filesA).

③ This area shows the contents and details of the internal hard drive (filesC).

Printing Reports

The Maintenance Report

The Maintenance report will show all the important maintenance events (such as jams, alarms, and errors) as well as consumable status.

To print the Maintenance report:

1. At the Main Screen, press Test.
   SETUPS is highlighted.
2. Press ▼ to highlight MAINT.
3. Press Select.

Figure E-3 shows the Engine Status, Maintenance Counters, and the Event Log.

The engine status is used only by a service representative.

Maintenance Report Key

① This is the serial number for your printer.

② This is the time of day the Maintenance Report was printed, shown in the upper left corner as a clock face. It is also printed in the lower right corner as text (not visible in this illustration).

③ This section lists all of the current values for the printer engine.

④ This section lists all of the current values of the counters tracking consumable lifetimes.

CURRENT indicates the cumulative use for each consumable since it was replaced.

MAXIMUM indicates the recommended maximum usage for each consumable.

REPLACE indicates the point at which the consumable should be replaced. The Control Panel indicates when a particular consumable has reached this point.

USAGE indicates the percentage of use for each consumable (except toner). When this value reaches 100%, the printer displays an end-of-life message to indicate the consumable should be changed.

⑤ This section lists errors that have occurred in the D640 since the last Maintenance report was printed.

② **③** **④** **⑤**

HP 5000 Model D640 Printer
MAINTENANCE REPORT

HEWLETT PACKARD **①**

Serial No. JP20000147

```
Engine Status
      00 01 02 03 04 05 06 07   08 09 0A 0B 0C 0D 0E 0F
 00   00 00 00 00 40 00 00 00   00 00 01 00 00 00 00 00
 10   00 00 00 00 00 00 00 00   00 00 00 00 00 00 00 00
 20   00 00 00 0A 00 00 00 00   00 00 00 00 56 02 00 00
 30   00 61 00 87 00 00 00 00   00 00 00 00 00 00 00 00
 40   03 11 00 8C 6B 6B 6B 6B   03 03 03 03 03 03 00 00
 50   00 00 00 00 00 00 F8 40   B5 B5 09 00 00 86 35 8F
 60   00 00 8F 00 00 59 10 00   00 00 00 5A 9E 1A 00 00
 70   00 00 00 00 00 00 00 00   00 00 00 00 00 01 00 80
```

```
Maintenance counters:     Current  Maximum  Replace  Usage
  Developer:                 9572    10000    8400     27%
  Drum unit:                 9572    10000    7500     17%
  Fuser:                     9900    10000    7000      3%
  Tray 1 rollers:            9947    10000    5000      1%
  Tray 2 rollers:            9990    10000    5000      0%
  Tray 3 rollers:            9998    10000    5000      0%
```

```
Event Log
     Date    Time  Pg Count   Code    Description
  29 OCT 96  13:17    1051   JAM  03   TRAY3 pick error (3S)
  29 OCT 96  13:18    1054   JAM  03   TRAY3 pick error (3S)
  29 OCT 96  13:32    1054   JAM  13   Feed path jam 3 (3S)
  29 OCT 96  13:33    1054   JAM  03   TRAY3 pick error (3S)
  29 OCT 96  13:34    1054   JAM  18   Feed path jam 4 (3S)
  29 OCT 96  13:35    1054   JAM  13   Feed path jam 3 (3S)
  29 OCT 96  13:36    1054   JAM  26   Fusing unit jam 2 (3S)
  29 OCT 96  13:36    1054   JAM  13   Feed path jam 3 (3S)
  30 OCT 96  12:57    1703   JAM  02   TRAY2 pick error (2S)
  30 OCT 96  12:59    1703   JAM  18   Feed path jam 4 (2S)
  30 OCT 96  13:00    1703   JAM  26   Fusing unit jam 2 (2S)
  03 NOV 96  18:47    2054   CHGE 06   Toner Replacement
  12 NOV 96  15:18    3272   JAM  2B   Ejection unit jam 2 (1S)
  12 NOV 96  15:24    3272   JAM  18   Feed path jam 4 (1S)
  12 NOV 96  15:24    3272   JAM  26   Fusing unit jam 2 (1S)
  19 NOV 96  18:42    6699   JAM  2B   Ejection unit jam 2 (1S)
```

NOV 24 1996 14:15:19

Figure E-3   Printer Maintenance Report Sample

The Typeface Report

The D640 comes with a number of fonts (typefaces). The typefaces available are very close to those found on an HP LaserJet 4si.

To get a list of these typefaces, follow this procedure:

1. At the Main Screen, press Test.

   SETUPS is highlighted.
2. Press ▼ to highlight FONTS.
3. Press Select.

Figure E-4 provides examples of the installed typefaces resident in the printer.

If you have selected a virtual font cartridge, you will see the message "not installed" instead of a font sample. This is because the font image is "not installed" in memory until it is selected by your print job. Once it has been selected, you can reprint this report and see a sample of the font.

Typeface Report Key
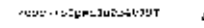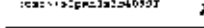
① This is the time of day the Typeface Report was printed, shown in the upper left corner as a clock face. It is also printed in the lower right corner as text.

② This section lists all of the installed typefaces.

Figure E-4   Typeface Report Sample

Printing Reports

The Symbol Set Table Report

The printer has individual symbol sets for each typeface. This report shows the symbol set and codes for the symbol set specified in the PCL menu setting. The printer prints a page for each font in the printer.

To print the Symbol Set Table report:

1. At the Main Screen, press Test.

   SETUPS is highlighted.
2. Press ▼ to highlight TABLE.
3. Press Select.

   A one page report is printed:

Figure E-5 lists the font name, code for the font, pitch, weight, and type code.

Symbol Set Table Report Key

① This is the time of day the Symbol Set Table Report was printed, shown in the upper left corner as a clock face. It is also printed in the lower right corner as text.

Printing Reports

Figure E-5   Symbol Set Table Report Sample

The Printer Menu Settings Report

The printer can print a report showing the complete menu tree.

To print the Menu Settings report:

1. At the Main Screen, press Test.
    SETUPS is highlighted.
2. Press ▼ to highlight MENUS.
3. Press Select.

Figure E-6 identifies all Printing Menu, Configuration Menu, PCL Menu, Communications Menu, Maintenance Menu, and Paper Size Menu settings.

In these examples of the Printer Menu Setting Report Pages, the default factory setting is indicated by the "=" sign in front of the setting option.

Printer Menu Settings Report Key

① This is the time of day the Printer Menu Setting Report was printed, shown in the upper left corner as a clock face. It is also printed in the lower right corner as text.

Printing Reports

Figure E-6   Printer Menus Report Sample (Sheet 1 of 3)

Figure E-7   Printer Menus Report Sample (Sheet 2 of 3)

Printing Reports

Figure E-8   Printer Menus Report Sample (Sheet 3 of 3)

The Ripple Test Print

The printer provides a test print ripple pattern that is useful in checking print quality and paper feeding. The test print pattern uses the font and point size specified in the PCL menu.

To print a test print ripple pattern:

1. At the Main Screen, press Test.

   SETUPS is highlighted.

2. Press ▼ to TESTPRINT.

   TESTPRINT is highlighted.

3. Press Select.

Note   TESTPRINT will print several pages. You can change the number of pages printed by altering the testpages configuration in the Maintenance menu (See "Maintenance Menu Settings" on page 2-24).

Figure E-9 shows the ripple test pattern. The pattern allows visual observations of print quality.

Troubleshooting with the Ripple Test Pattern

The ripple test pattern can help determine if the printer is operating at optimum performance or if it needs maintenance.

1. Look at the test pattern and other print jobs that indicate print quality problems.
2. Go to "Maintaining Print Quality" on page 6-1 and follow the instructions for comparing your observations to the supplied problem samples.
3. Identify the problem with the sample and perform the maintenance as described.

Printing Reports

Figure E-9   Printer Ripple Test Pattern Sample

F

Warranty and Support

Where To Call For Help

We have established phone numbers for you to call and receive help should any questions or problems arise during the installation of the D640 printer or any of its accessories. The numbers listed are available during normal business hours of 8:00 AM to 5:00 PM. This phone assistance is available free of charge (except phone tolls) during the first year after shipment of your printer. You may call as often as necessary for assistance with the following items:

- Installation
- Configuration
- Daily use, such as clearing paper jams or installing consumables
- Questions about the manuals

Prior to calling you should have your printer's serial number available. This can be found on a label located on the upper right corner of the printer when the printers front door is open. It will look like "JP20000149". In addition, have your question ready and be near the printer if necessary.

After the first year you may continue to use this service for a per-call fee, which will be specified when you call.

Note   Please call your local HP Support Organization for all service related issues and for all locations that are not directly listed. Refer to the next page for a list of regional Support Organization telephone numbers.

For installation and general printer questions, call:

- The toll-free number in the US and Canada is:
    1-888-223-6774
- The alternate number for the US, Canada, and for English speaking callers is:
    1-208-422-9102
- In Europe, use the numbers in Table F-1, "European installation support" to reach HP's European support center in Amsterdam.

Table F-1   European installation support

Austria	0660 6386	Netherlands	020 6068751
Belgium (Dutch)	02 626 8806	Norway	22 11 6299
Belgium (French)	02 626 8807	Portugal	01 441 7199
Finland	0203 47288	Spain	902 321 123
France	04 50 43 9853	Sweden	08 619 2170
Germany	0180 5 25 81 43	Switzerland	0848 80 11 11
Ireland	01 662 5525	UK	0171 512 5202
Italy	02 26410350		

For hardware problems, call:

- In the US and Canada:
    1-800-633-3600
- In Europe:
    - 31-20-682-26-28 (English)
    - 31-20-681-78-10 (German)
    - 31-20-681-77-50 (French)

For the rest of the world, use the numbers in Table F-2, "International hardware support".

Table F-2   International hardware support

Area	Address	Telephone
Canada		
Hewlett-Packard Ltd.	5150 Spectrum Way, Mississauga, Ontario, L4W 5GI	905-206-4725
Hewlett-Packard Ltd.	101, 17971-106A Avenue, Edmonton, Alberta T5S 1V8	403-425-4725
Hewlett-Packard Ltd.	17500 Trans Canada Highway, South Service Road, Kirkland, Quebec H9J 2X8	514-697-4232
Latin America		
Hewlett-Packard de Mexico	Prolongacion Reforma 700, Lomas de Santa Fe, 01210 Mexico, D.F.	525-258-4077
Hewlett-Packard Argentina S.A.	Montaneses 2140/50/60, 1428 Buenos Aires, Argentina	54-1-787-7100
Edisa Hewlett-Packard S.A.	R. Aruana, 125-Tambore, 06460-010-Barueri-Sao Paulo, Brazil	55-11-726-4700
Australia and New Zealand		
Hewlett-Packard Ltd.	31-41 Joseph Street, Blackburn, Victoria 3130, Australia	61-3-272-2895
Hewlett-Packard (NZ) Ltd.	186-190 Willis Street, P.O. Box 9443, Wellington, New Zealand	64-4-802-6800
Japan		
Hewlett-Packard Japan, Ltd.	9-1 Takakura-cho, Hachioji-shi, Tokyo 192	81-426-60-2111
Hewlett-Packard Japan, Ltd.	Forum honjo 2F, 2-4-1 Honjo, Matsumoto-shi, Nagano 390	81-263-39-2454
Hewlett-Packard Japan, Ltd.	6-6 Hosojima-cho, Hamamatsu-shi, Shizuoka 435	81-53-466-6231

Warranty and Support

Table F-2   International hardware support

Area	Address	Telephone
Europe		
Hewlett-Packard GmbH	Lieblgasse 1, A-1200 Vienna, Austria	43-1-25000-555
Hewlett-Packard A/S	Kongevejen 25, DK-3460 Birkeroed, Denmark	45-99-10-00
Hewlett-Packard Oy,	Tekniset palvelut, Piispankalliontie 17, 02200 Espoo, Finland	358-9-88721
Hewlett-Packard GmbH	Kunden-Informations-Zentrum, Berliner Strasse 111, D-40880 Ratingen, Germany	0180-5-32-62-99
Hewlett-Packard Italiana, S.p.A.	Via G.di Vittorio, 9, 1-20063 Cernusco S/N (MI), Italy	39-2-92124341
Hewlett-Packard B.V.	Startbaan 16, 1180 AR Amstelveen, The Netherlands	31-20-5476432
Hewlett-Packard Norge AS	Postboks 60, Skoeyen, 0212 Oslo, Norway	47-22-73-59-05
Hewlett-Packard Polska sp.z 0.0.	A1. Jerozolimskie 181, 02-222 Warszawa, Polska	48-22-608-7700
Hewlett-Packard Portugal, S.A.	Edificio Escritorios Parque Oceano, 5 Pisco-F, Sto Amaro de Oeiras, 2780 Oeiras, Lisboa, Spain	351-1-482-85-00
Hewlett-Packard Espanola, S.A.	Ctra. N-VI, KM. 16,5000, 28230 Las Rozas, Madrid, Spain	34-1-631-16-00
Hewlett-Packard	Avda. Diagonal, 605, 08028 Barcelona, Spain	34-3-401-91-00
Hewlett-Packard (Schweiz) AG	In der Luberzen 29, 8902 Urdorf/Zurich, Switzerland	01-735-71-11
Hewlett Packard (Suisse) S.A.	39, Rue de Veyrot, 1217 Meyrin 1, Switzerland	022-780-44-46
Hewlett-Packard	Amen Corner, Cain Road, Bracknell, Berks RG12 1HN, England	1344-360000

Table F-2   International hardware support

Area	Address	Telephone
India and Far East Area		
China Hewlett-Packard Co., Ltd.	5-6/F, West Wing Office, China World Trade Centre, No. 1 Jian Guo Men Wai Avenue, Beijing, 100004, People's Republic of China	86-10-65053888
Hewlett-Packard	17-21/F Shell Tower, Time Square, 1 Matheson Street, Causeway Bay, Hong Kong	852-2599-7090
Hewlett-Packard India, Ltd.	Paharpur Business Center, 21 Nehru Place, New Delhi 110 019, India	91-11-6472311-2328-2329-2330
P.T. Hewlett-Packard	Servisindo Gedung Berca, Jalan Abdul Muis 62, Jakarta 10160, Indonesia	62-21-351-8788
Hewlett-Packard Korea	25-12, Yoido-dong, Youngdeungpo-gu, Seoul 150-010, Korea	82-2-769-0114
Hewlett-Packard	Ground Floor Wisma Cyclecarri, 288 Jalan Raja Laut, 50350 Kuala Lumpur, Malaysia	02-03-298-6555
Phillipines Corporation	9th Floor, Rufine Pacific Towers, 6784 Ayala Avenue, Makati City, Metro Manila 1229, Phillipines	632-894-1451
Hewlett-Packard Singapore Pte Ltd.	450 Alexandra Road, Singapore 119960	65-275-3888
Hewlett-Packard Taiwan Ltd.	8th Floor, HP Building, 337 Fu Hsing North Road, Taipei, Taiwan	886-2-712-0404
Hewlett-Packard Ltd.	23-25/F Vibulthani Tower II, 3199 Rama IV Road, Klongtan, Klong Toey, Bangkok 10110, Thailand	662-661-3900-34
Hewlett-Packard Vietnam	Tecasin Business Centre, 243-243B Hoang Van Thu, Unit G10-12, Tan Binh District, Vietnam	84-8-844-3441

Warranty and Support

Warranty

HP Maintenance Agreements

Hewlett-Packard has several types of maintenance agreements that meets a wide range of support needs.

On-Site Service Agreements

To provide you with the support level best suited to your system usage and support budget, HP has on-site service agreements with two response times:

Priority On-Site Service is designed for production-critical applications, giving you four-hour service response to your site for calls made during normal HP business hours.

Next Day On-Site Service provides on-site support by the next working day following your service request. Extended coverage hours and extended travel beyond HP designated service zones are available for additional charges on most on-site service agreements.

HP5000 Model D640 Warranty

This warranty entitles you to standard warranty services for your HP5000 Model D640 printer and is available from HP worldwide. However, there may be local variations in the level of warranty service. You should contact the local HP Service Center to check for the applicable local warranty in your country or province.

90 Day On-Site Limited Warranty

Hewlett-Packard warrants the HP5000 Model D640 printer and accessories against defects in materials and workmanship for a period of 90 days from purchase by the end user. During the warranty period, HP will, at its option, either repair or replace products which prove to be defective. **The warranty period begins on either the date of delivery, or, where the purchase price includes installation by Hewlett-Packard, on the date of installation.**

To have your HP5000 Model D640 printer serviced by HP, contact the closest HP Service Center.

Exclusions

The warranty on your HP5000 Model D640 printer and accessories shall not apply to defects resulting from:

- Improper or inadequate maintenance by customer.
- Customer supplied software or interfacing.
- Unauthorized modification or misuse.
- Operation outside of the environmental specifications for the product.
- Operation of non-supported printing media.
- Duty cycle abuse (see note below)

- Operating the printer from a mechanical switch box without a designated surge protector.
- Improper site preparation and maintenance.
- Failure to perform key operator maintenance, as specified in the *D640 User Manual.*
- Use of non-HP consumables (see note below), memory boards, interface boards, or adapters.

Note The use of non-HP consumable supplies alone does not affect either your warranty or any maintenance contract you may have purchased. However, if an HP 5000 D640 printer failure or damage is found to be to be attributable directly to the use of a non-HP consumable, HP will not repair the printer free-of-charge. In this case, standard time and materials charges will be applied to service your printer for that particular failure or damage

Operation of the printer beyond the limit of its duty cycle (printing greater than the equivalent of 300,000 single-sided pages per month) shall be deemed printer abuse and all repairs thereafter will be billed on a time and materials basis.

If you are using a mechanical switchbox, ensure that it is equipped with a surge protector. Damage to your printer could occur from the use of unprotected mechanical switch boxes.

Limitations

The warranty set forth above is exclusive and no other warrants, whether written or oral, is expressed or implied. Hewlett-Packard specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Service During The Warranty Period

If your hardware should fail during the warranty period, contact an authorized HP dealer or your local Customer Service Center.

Service After The Warranty Period

If your hardware should fail after the warranty period, contact an authorized HP dealer or your local Customer Service Center. If you have an HP Maintenance Agreement, request service under your agreement.

Warranty and Support

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READER COMMENT SHEET
System Peripherals Operation
D640 Cut Sheet Printer User Manual
Manual Part Number C5620-90024
March 1997

A reader comment sheet helps us improve the accuracy and readability of this User Manual. It also gives you a way to make suggestions and recommend improvements to the product.

Serious errors, such as technical inaccuracies that may render a program or mechanical device inoperative, should be reported immediately to your Hewlett Packard Response Center or directly to a Support Engineer. This ensures that such problems are addressed as quickly as possible.

Editorial suggestions (please include page, table, and figure numbers):

_____

_____

_____

_____

Recommendations (attach additional information, if needed):

_____

_____

_____

_____

Name: _____ Date: _____

Job Title: _____ Telephone: _____

Company: _____

Address: _____

Hewlett-Packard has the right to use submitted suggestions without obligation, with all such ideas becoming the property of Hewlett-Packard.
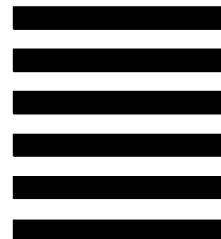
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